



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

Japan. Imperial earthquake investiga-  
tion committee.

551.2252  
J35

The Earthquake investigation commit-  
tee catalogue of Japanese earthquakes.  
1899.

551.2252 J35



THE  
EARTHQUAKE INVESTIGATION COMMITTEE  
CATALOGUE OF JAPANESE  
EARTHQUAKES.

---

COMPILED UNDER THE SUPERINTENDENCE

OF THE  
LATE PROF. S. Sekiya.

Reprinted from the Journal of the College of Science, Imperial University, Tōkyō, Japan.  
Vol. XI, Pt. 4.

---

Tōkyō, 1899.

551.2252

J 35

## ERRATA.

- p. 320. Eqke No. 7; Intensity. *For III, read II.*  
 „ Eqke No. 8; „ „ „ „ „ „  
 „ Eqke No. 10; „ „ „ „ „ „  
 „ Eqke No. 20; „ „ „ „ „ „  
 „ Eqke No. 22; District. *After Iyo, Tosa, Izu, Yamato, etc., insert with sea-waves along the coasts of Tosa and Izu.*
- p. 321. Eqke No. 41; Intensity. *For III, read II.*  
 „ Eqke No. 49; District. *After Mino, insert after-shocks continued for three days.*  
 „ Eqke No. 50; Intensity. *For I, read III?*
- p. 332. Eqke No. 369; Intensity. *For II, read III.*  
 „ Eqke No. 374; District. *For („), read Suruga, the Fuji-san erupted.*
- p. 333. Eqke No. 377; District. *For („), read Higo, the Aso-san erupted.*  
 „ Eqke No. 378; District. *For („), read Kyoto.*  
 „ Eqke No. 399; Intensity. *For I, read III?*
- p. 334. Eqke No. 418; District. *After Mutsu, insert accompanied by sea-waves.*
- p. 342. Eqke No. 636; Intensity. *For III, read II.*
- p. 345. Eqke No. 723; District. *For („), read Nara, strongly felt in Kyoto.*  
 „ Eqke No. 734; District. *For („), read Kyoto.*  
 „ Eqke No. 737; Intensity. *For III, read II.*
- p. 351. Eqke No. 891; District. *After Suruga, insert the Fuji-san erupted.*
- p. 354. Eqke No. 976; Intensity. *For III, read II.*
- p. 370. Eqke No. 1416; European Date. *For 1576, read 1578.*
- p. 377. Eqke No. 1610; Intensity. *For III, read II.*
- p. 381. Eqke No. 1702; Intensity. *For III, read III?*
- p. 386. Eqke No. 1861; District. *For Omi, read Yedo.*
- p. 392. Table I. Eqke No. 9; European Date. *For 737, read 742.*
- p. 394. „ Eqke No. 58; District. *After Suruga, insert the Fuji-san erupted.*
- p. 396. „ Eqke No. 113; District. *For Kyoto and Satsuma, read Satsuma, slightly felt in Kyoto.*

n 1893

n, and

at zeal

m bad

anguish-

ot live

ace in

carried

and is

alogue,

apanese

les and

earth-

l 1867,

to the

quakes

1) Counting as only one each great earthquake and its after-shocks.

551.2252

J 35

**The Earthquake Investigation Committee  
Catalogue of Japanese Earthquakes.**

SUPERINTENDED BY THE LATE

Prof. **S. Sekiya.**

315336

**PREFACE.**

The Earthquake Investigation committee instituted in 1893 the compilation of facts relating to earthquakes in Japan, and the work was superintended by Prof. S. Sekiya with great zeal and ability, although he was all the time suffering from bad health. It is extremely to be regretted that this distinguished scientist, who did so much for seismology, did not live to finish the undertaking, his death having taken place in January 1895. The collection of earthquake literature, carried on by Mr. M. Tayama, was, however, steadily continued and is now gradually approaching completion. The following Catalogue, which has been compiled from 427 different kinds of Japanese histories, monographs, and unpublished original chronicles and journals, gives the dates, districts and intensities of 1898 earthquakes<sup>1</sup> in Japan during the 1451 years between 416 and 1867, and is to be regarded as a kind of table of contents to the complete compilation of detailed accounts of Japanese earthquakes

<sup>1</sup>) Counting as only one each great earthquake and its after-shocks.

to be published before long in the reports of the Earthquake Investigation Committee.

The scale of intensity of earthquake motion adopted in the Catalogue is as follows :

- (1) *small or slight earthquakes*, in which the motion was weak, and which caused neither alarm nor damage ;
- (2) *strong earthquakes*, in which the motion was sufficiently sharp to cause people to run out of doors and to produce slight damage, such as the overthrowing of furnitures, small cracks in walls, *ishigaki* (masonry walls), embankments, etc ;
- (3) *great or destructive earthquakes*, in which the ground was cracked, buildings greatly damaged, lives lost, etc.

In the Catalogue these three classes are severally distinguished by the Roman numerals, I, II and III<sup>1</sup>.

There exist in some cases more or less complete records of the after-shocks of great earthquakes. In the Catalogue, however, all these shocks have, for the sake of simplicity, been excluded, in so far as they could be ascertained to be such. Again, volcanic eruptions and sea-waves are not given, unless when accompanied by earthquakes. The catalogues of these two natural phenomena in Japan shall form the subjects of future work.

The only other general catalogue of historical Japanese earthquakes is that given by the late Mr. H. Okajima in his "Nippon Saiishi," or *A History of unusual natural phenomena in Japan*,<sup>2</sup> which includes 1368 earthquakes and was compiled from 213 different works of reference. Lastly, I may also call atten-

---

1) See also §§ 2, 3 and 4 of the next paper.

2) Printed in 1894, after the death of Mr. Okajima.

tion to the three valuable papers on historical Japanese earthquakes by Messrs. Naumann,<sup>1</sup> I. Hattori<sup>2</sup> and John Milne.<sup>3</sup> As an addition to these papers, I append to the present Catalogue a full discussion on the time and space distribution of earthquakes in Japan.

Feb., 1899.

F. OMORI.

SEISMOLOGICAL INSTITUTE, TOKYO.

---

1) *Dr. Naumann.* Ueber Erdbeben und Vulkanausbrueche in Japan. *Mittheilungen der Deutschen Gesellschaft für Natur-und Völkerkunde Ostasiens.* August, 1878.

2) *I. Hattori.* Destructive Earthquakes in Japan. *Trans. Asiatic Soc. Japan*, vol. VI, part II.

3) *John Milne.* Note on the great earthquakes of Japan. *Trans. Seis. Soc. Japan*, vol. III.



*Notes*  
Remontations au crayon noir d'après  
le r'mettré de la com. paraison (pour l'intensité III)  
avec le travail de Mori: Notes au Japon ces notes  
ont fait suite au travail de Sekiya dans le même  
recueil.

... FORD LIBRARY

*Les T's seront rapportés  
à double source  
Mori - Sekiya*


**A CATALOGUE**  
**OF**  
**EARTHQUAKES IN JAPAN**  
**BETWEEN**  
**416 and 1867.**

No.	EUROPEAN DATE.			JAPANESE DATE. <sup>1</sup>				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1	416	8	23	Inkio-Tenno.	5	7	14	III	Kawachi.
2	599	5	28	Suiko-Tenno.	7	4	27	III	Yamato.
3	642	11	8	Kokyoku-Tenno.	1	10	8	I	"
4	"	"	9	"	"	"	9	I	"
5	"	"	24	"	"	"	24	I	"
6	644	(Spring)		Tenchi-Tenno.	3	(Spring)		I	"
7	675	11		Temmu-Tenno.	3	11		III	"
8	677	7	22	"	5	6	14	III	"
9	678	1		"	6	12		III	Chikushi.
10	679	11	22	"	7	10	11	III	Yamato.
11	"	12	24	"	"	11	14	I	"
12	680	10	24	"	8	9	23	I	"
13	681	4	17	"	9	3	21	I	"
14	681	7	18	"	"	6	24	I	"
15	"	12	6	"	"	10	18	I	"
16	"	12	20	"	"	11	2	I	"
17	682	3	6	"	10	1	19	I	"
18	"	4	22	"	10	3	7	I	"
19	"	8	28	"	"	7	17	I	"
20	"	9	22	"	"	8	12	III	"
21	"	"	27	"	"	"	17	I	"
22	684	11	29	"	12	10	14	III	Iyo, Tosa, Izu, Yamato etc. with sea-waves along the coast of Toza & Izu.
23	686	1	12	"	13	12	10	I	Yamato.
24	"	2	20	Shucho.	1	1	19	I	"
25	687	12	29	Jito-Tenno.	1	11	17	I	"
26	701	5	12	Taiho	1	3	26	III	Tanba.
27	712	7	19	Wado	5	6	7	I	Yamato.
28	715	7	4	Reiki	8	5	25	III	Totomi.
29	"	"	5	"	"	"	26	III?	Mikawa.

<sup>1</sup> A month in old Japanese calendar marked with an asterisk (\*) is the extra or intercalary month of the same name.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
30	715	8	17	Reiki.	8	7	10	I	Yamato.
31	716	2	5	"	2	1	4	I	"
32	719	4	24	Yoro.	3	3	26	I	"
33	720	"	1	"	4	2	15	I	"
34	721	2	28	"	5	1	24	I	"
35	"	3	1	"	"	1	25	I	"
36	"	3	13	"	"	2	7	I	"
37	722	1	24	"	"	12	29	I	"
38	732	8	14	Tenpei.	4	7	15	I	"
39	733	1	16	"	"	12	22	I	"
40	734	5	18	"	6	4	7	III	Whole Japan. <i>Nara in Yamato of several provinces</i>
41	"	10	29	"	"	9	24	II	Yamato.
42	737	11	19	"	9	10	19	I	"
43	738	10	27	"	10	9	6	I	"
44	742	5	7	"	14	3	24	I	Yamashiro.
45	"	11	28	"	"	10	23	III	Osuni.
46	743	1	20	"	"	12	16	I	Yamashiro.
47	"	8	15	"	15	7	17	I	"
48	744	6	30	"	16	5	12	III	Higo.
49	745	6	5	"	17	4	27	III	Mino. <i>after-shocks continue for three days.</i>
50	"	"	9	"	"	5	1	III	Settsu.
51	"	"	10	"	"	"	2	I	"
52	"	"	11	"	"	"	3	I	"
53	"	"	12	"	"	"	4	I	"
54	"	"	13	"	"	"	5	I	"
55	"	"	14	"	"	"	6	I	"
56	"	"	15	"	"	"	7	I	"
57	"	"	16	"	"	"	8	I	"
58	"	"	17	"	"	"	9	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
59	745	6	18	Tenpei.	17	5	10	I	Settsu.
60	"	"	24	"	"	"	16	I	"
61	"	"	26	"	"	"	18	I	"
62	"	8	22	"	"	7	17	I	"
63	"	"	23	"	"	"	18	I	"
64	"	9	28	"	"	8	24	I	"
65	"	10	3	"	"	"	29	I	"
66	"	10	5	"	"	9	2	I	"
67	746	2	12	"	18	1	14	I	Yamato.
68	"	"	27	"	"	1	29	I	"
69	"	"	28	"	"	1	30	I	"
70	"	7	2	"	"	6	5	I	"
71	"	10	6	"	"	9	13	I	"
72	"	11	4	"	"	9*	13	I	"
73	747	6	28	"	19	5	12	I	"
74	752	2	4	Tenpei-shoho.	4	1	11	I	"
75	"	11	15	"	"	10	1	I	"
76	"	"	16	"	"	"	2	I	"
77	762	6	9	Tenpei-hoji.	6	5	9	III	Mino, Hida, Shinano.
78	766	7	20	Tenpei-jingo.	2	6	5	III	Osumi.
79	773	3	18	Hoki.	4	2	17	I	Yamato.
80	"	"	31	"	"	"	30	I	"
81	"	9	24	"	"	8	29	I	"
82	"	10	25	"	"	10	1	I	"
83	"	"	28	"	"	"	4	I	"
84	775	3	17	"	6	2	8	I	"
85	"	6	10	"	"	5	4	I	"
86	"	11	7	"	"	10	6	I	"
87	776	"	28	"	7	10	9	I	"




No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
88	776	12	21	Hoki.	7	11	2	I	Yamato.
89	778	6	25	"	9	5	22	I	"
90	"	"	29	"	"	"	26	I	"
91	781	4	8	Ten-o.	1	3	6	I	"
92	"	6	5	"	"	5	4	I	"
93	"	"	14	"	"	"	13	I	"
94	"	7	11	"	"	6	12	I	"
95	"	"	21	"	"	"	22	I	"
96	781	11	4	"	"	10	10	I	"
97	"	11	26	"	"	11	3	I	"
98	"	12	20	"	"	"	27	I	"
99	782	1	4	"	"	12	12	I	"
100	"	"	16	"	"	"	24	I	"
101	"	3	5	Yen-ryaku.	1	1*	13	I	"
102	"	"	7	"	"	"*	15	I	"
103	"	4	10	"	"	2	19	I	"
104	"	8	1	"	"	6	14	I	"
105	"	9	11	"	"	7	25	I	"
106	783	2	1	"	2	1	23	I	"
107	785	7	12	"	4	5	27	I	Yamashiro.
108	"	10	14	"	"	9	3	I	"
109	786	3	7	"	5	1	28	I	"
110	790	12	29	"	9	11	15	I	"
111	791	1	25	"	"	12	13	I	"
112	792	2	27	"	11	1	27	I	"
113	793	10	13	"	12	8	30	I	"
114	"	11	26	"	"	10	15	I	"
115	794	2	23	"	13	1	15	I	"
116	"	7	18	"	"	6	13	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
117	794	10	3	Yen-ryaku.	13	9	1	I	Yamashiro.
118	"	"	4	"	"	"	2	I	"
119	797	9	13	"	16	8	14	I	Kyoto.
120	798	5	4	"	17	4	10	I	"
121	799	12	9	"	18	11	4	I	"
122	804	9	22	"	23	8	11	I	"
123	"	11	6	"	"	9	27	I	"
124	805	3	3	"	24	1	25	I	"
125	"	8	19	"	"	7	17	I	"
126	"	9	9	"	"	8	9	I	"
127	806	1	2	"	"	12	5	I	"
128	807	7	8	Taido.	2	5	25	II	"
129	810	8	3	Konin.	1	6	26	I	"
130	812	1	7	"	2	12	16	I	"
131	816	11	4	"	7	10	8	I	"
132	818	1	26	"	8	12	13	I	"
133	"	"	31	"	"	"	18	I	"
134	"	2	2	"	"	"	20	I	"
135	"	8		"	9	7		III	Sagami, Shimosa, Kotsuke, tsuke. Musashi, Hitachi, Shimo-
136	823	8	8	"	14	6	24	I	Kyoto.
137	"	9	23	"	"	8	12	I	"
138	824	1	17	"	"	12	9	I	"
139	825	2	12	Tencho.	2	1	17	I	"
140	"	3	23	"	"	2	26	I	"
141	826	1	18	"	3	1	5	I	"
142	"	"	27	"	"	"	14	I	"
143	"	2	5	"	"	"	23	I	"
144	"	4	8	"	"	2	24	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
145	826	5	26	Tencho.	3	4	12	I	Kyoto.
146	"	7	18	"	"	6	6	I	"
147	"	12	28	"	"	11	22	I	"
148	827	1	17	"	"	12	13	I	"
149	"	5	20	"	4	4	17	I	"
150	"	8	11	"	"	7	12	III	Kyoto, after-shocks continued for one year.
151	828	7	22	"	5	6	3	I	"
152	"	"	24	"	"	"	5	I	"
153	"	8	13	"	"	"	25	I	"
154	"	11	19	"	"	10	5	I	"
155	"	12	6	"	"	10	22	II	"
156	"	12	7	"	"	"	23	I	"
157	829	1	8	"	"	11	25	I	"
158	"	4	11	"	6	3	1	II	"
159	"	10	11	"	"	9	6	I	"
160	"	11	24	"	"	10	21	I	"
161	830	2	3	"	7	1	3	III	Dewa (Akita). Aki no Ugo
162	"	"	12	"	"	"	12	I	Kyoto.
163	"	"	22	"	"	"	22	I	"
164	"	9	8	"	"	8	14	I	"
165	"	11	27	"	"	11	5	I	"
166	831	5	10	"	8	3	21	I	"
167	"	7	30	"	"	6	14	I	"
168	"	10	9	"	"	8	26	I	"
169	832	2	19	"	9	1	10	I	"
170	"	3	7	"	"	"	27	I	"
171	"	6	12	"	"	5	7	I	"
172	"	10	15	"	"	9	14	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
173	832	10	19	Tencho.	9	9	18	I	Kyoto.
174	"	"	22	"	"	"	12	I	"
175	"	"	23	"	"	"	22	I	"
176	833	3	22	"	10	2	24	II	"
177	"	7	22	"	"	6	28	I	"
178	834	7	31	Showa.	1	6	18	I	"
179	835	4	7	"	2	3	2	I	"
180	836	4	5	"	3	3	12	I	"
181	"	6	11	"	"	5	20	II	"
182	"	8	2	"	"	6	13	I	"
183	837	7	28	"	4	6	19	I	"
184	"	8	24	"	"	7	16	I	"
185	"	10	8	"	"	9	2	I	"
186	838	6	27	"	5	5	28	I	"
187	"	7	1	"	"	6	2	I	"
188	839	5	27	"	6	4	7	I	"
189	"	8	24	"	"	7	8	I	"
190	840	2	23	"	7	1	13	I	"
191	"	11	13	"	"	10	12	I	"
192	841	3	13	"	8	2	13	III	Shinano.
193	"	7	30	"	"	7	5	III	Izu.
194	842	3	22	"	9	2	3	I	Kyoto.
195	"	4	17	"	"	2	29	I	"
196	"	5	4	"	"	3	16	I	"
197	"	7	30	"	"	6	15	I	"
198	"	9	25	"	"	8	14	I	"
199	"	12	23	"	"	11	14	I	"
200	843	1	20	"	"	12	12	I	"
201	"	6	18	"	10	5	13	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
202	843	12	7	Showa.	10	11	9	I	Kyoto.
203	845	9	12	"	12	8	4	I	"
204	"	10	3	"	"	"	25	I	"
205	846	3	31	"	13	2	27	I	"
206	848	4	3	Kasho.	1	2	22	I	"
207	"	4	18	"	"	3	8	I	"
208	"	5	8	"	"	"	28	I	"
209	"	"	13	"	"	4	3	I	"
210	"	6	30	"	"	5	22	I	"
211	"	7	31	"	"	6	24	I	"
212	"	8	1	"	"	"	25	I	"
213	"	11	10	"	"	10	7	I	"
214	"	"	23	"	"	"	20	I	"
215	849	1	3	"	"	12	2	I	"
216	"	4	10	"	2	3	10	I	"
217	"	5	12	"	"	4	13	I	"
218	"	7	30	"	"	7	4	I	"
219	"	8	14	"	"	"	19	I	"
220	850	2	22	"	3	1	3	I	"
221	"	3	14	"	"	"	23	I	"
222	"	4	11	"	"	2	21	I	"
223	"	4	24	"	"	3	5	I	"
224	"	5	10	"	"	"	21	I	"
225	"	"	24	"	3	4	6	I	"
226	"	6	2	"	"	"	15	I	"
227	"	10	9	"	"	8	26	I	"
228	"	11	27	"	"	10	16	III	Dewa.
229	851	2	20	Ninju.	1	1	12	I	Kyoto.
230	"	3	12	"	"	2	2	I	"



No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
231	851	4	23	Ninju.	1	3	15	I	Kyoto.
232	"	5	12	"	"	4	4	I	"
233	"	6	6	"	"	"	29	I	"
234	"	"	17	"	"	5	11	I	"
235	"	"	30	"	"	"	24	I	"
236	"	8	12	"	"	7	8	I	"
237	"	11	5	"	"	10	5	I	"
238	"	"	13	"	"	"	13	I	"
239	"	12	21	"	"	11	21	I	"
240	852	3	1	"	2	2	3	I	"
241	"	4	8	"	"	3	12	I	"
242	"	5	14	"	"	4	18	I	"
243	"	6	27	"	"	6	3	I	"
244	"	9	20	"	"	8	28	I	"
245	"	10	12	"	"	8*	22	I	"
246	"	"	28	"	"	9	8	I	"
247	"	11	23	"	"	10	5	I	"
248	"	12	6	"	"	"	18	I	"
249	"	"	25	"	"	11	7	I	"
250	853	2	28	"	3	1	13	I	"
251	"	3	2	"	"	2	15	I	"
252	"	5	3	"	"	3	18	I	"
253	"	"	17	"	"	4	2	I	"
254	"	8	16	"	"	7	4	I	"
255	"	"	27	"	"	"	15	I	"
256	"	9	3	"	"	"	22	I	"
257	"	10	4	"	"	8	24	I	"
258	"	11	10	"	"	10	2	I	"
259	"	12	20	"	"	11	13	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
260	854	6	19	Saiko.	1	5	17	I	Kyoto.
261	"	8	1	"	"	6	30	I	"
262	"	"	31	"	"	8	1	I	"
263	"	10	19	"	"	9	20	I	"
264	"	11	30	"	"	11	3	I	"
265	"	12	19	"	"	"	22	I	"
266	855	4	25	"	2	4	2	I	"
267	"	7	1	"	"	5	10	I	"
268	"	"	2	"	"	"	11	I	"
269	"	8	11	"	"	6	21	I	"
270	"	"	15	"	"	"	25	I	"
271	"	9	14	"	"	7	26	I	"
272	"	"	19	"	"	8	1	I	"
273	"	"	20	"	"	"	2	I	"
274	"	10	13	"	"	"	25	I	"
275	"	"	27	"	"	9	9	I	"
276	"	"	28	"	"	"	10	I	"
277	"	11	6	"	"	"	19	I	"
278	"	"	7	"	"	"	20	I	"
279	"	"	16	"	"	"	29	I	"
280	"	"	19	"	"	10	3	I	"
281	"	12	31	"	"	11	15	I	"
282	856	1	27	"	"	12	12	I	"
283	"	4	2	"	3	2	20	I	"
284	"	"	3	"	"	"	21	I	"
285	"	"	"	"	"	3	"	III	Kyoto, several shocks in this month.
286	"	5	12	"	"	4	1	I	"
287	"	"	13	"	"	"	2	I	"
288	"	7	10	"	"	6	1	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
289	856	7	11	Saiko.	3	6	2	I	Kyoto.
290	"	8	23	"	"	7	16	I	"
291	"	"	25	"	"	"	18	I	"
292	"	9	4	"	"	"	28	I	"
293	"	10	27	"	"	9	21	I	"
294	"	"	31	"	"	"	25	I	"
295	"	11	6	"	"	10	1	I	"
296	"	"	23	"	"	"	18	I	"
297	"	"	29	"	"	"	24	I	"
298	"	"	30	"	"	"	25	I	"
299	"	12	5	"	"	11	1	I	"
300	"	"	6	"	"	"	2	I	"
301	"	"	18	"	"	"	14	I	"
302	857	1	13	"	"	12	10	I	"
303	"	3	5	Ten-an.	1	2	2	I	"
304	"	"	10	"	"	"	7	I	"
305	"	"	17	"	"	"	14	I	"
306	"	"	19	"	"	"	16	I	"
307	"	"	24	"	"	"	21	I	"
308	"	5	21	"	"	4	20	I	"
309	"	6	10	"	"	5	11	I	"
310	"	"	19	"	"	"	20	I	"
311	"	8	5	"	"	7	8	I	"
312	"	"	21	"	"	"	24	I	"
313	"	10	20	"	"	9	25	I	"
314	"	11	3	"	"	10	9	I	"
315	858	5	13	"	2	3	23	I	"
316	"	6	12	"	"	4	23	I	"
317	"	7	14	"	"	5	26	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
318	858	7	30	Ten-an.	2	6	13	I	Kyoto.
319	"	11	5	"	"	9	22	I	"
320	"	12	21	"	"	11	9	I	"
321	859	1	24	"	2	12	13	I	"
322	"	9	1	Jokan.	1	7	27	I	"
323	"	"	12	"	"	8	8	I	"
324	"	10	17	"	"	9	14	I	"
325	"	12	1	"	"	10	29	II	"
326	"	"	13	"	"	11	12	I	"
327	860	5	20	"	2	4	22	I	"
328	"	6	1	"	"	5	5	I	"
329	"	"	14	"	"	"	18	I	"
330	"	7	13	"	"	6	17	I	"
331	"	"	18	"	"	"	22	I	"
332	"	"	21	"	"	"	25	I	"
333	"	8	8	"	"	7	14	I	"
334	"	"	11	"	"	"	17	I	"
335	"	"	18	"	"	"	24	I	"
336	"	9	29	"	"	9	7	I	"
337	"	10	28	"	"	10	7	I	"
338	860	11	21	"	"	"*	1	I	"
339	"	12	13	"	"	"*	23	I	"
340	861	1	22	"	"	12	4	I	"
341	"	2	26	"	3	1	9	I	"
342	"	5	24	"	"	4	7	I	"
343	"	6	28	"	"	5	13	I	"
344	"	7	4	"	"	"	19	I	"
345	"	"	5	"	"	"	20	I	"
346	"	8	7	"	"	6	23	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
347	861	9	28	Jokan.	3	8	17	I	Kyoto.
348	862	2	17	"	4	1	11	I	"
349	"	3	3	"	"	"	25	I	"
350	"	"	25	"	"	2	17	I	"
351	"	4	2	"	"	"	25	I	"
352	"	"	17	"	"	3	11	I	"
353	"	5	4	"	4	3	28	I	"
354	"	6	20	"	"	5	16	I	"
355	"	7	20	"	"	6	16	I	"
356	"	8	24	"	"	7	21	I	"
357	"	"	30	"	"	"	27	I	"
358	"	10	16	"	"	9	15	I	"
359	"	"	22	"	"	"	21	I	"
360	"	"	25	"	"	"	24	I	"
361	"	"	30	"	"	"	29	I	"
362	"	11	8	"	"	10	9	I	"
363	"	"	27	"	"	"	28	I	"
364	"	12	1	"	"	11	3	II	"
365	863	1	13	"	"	12	16	I	"
366	"	"	24	"	"	"	27	I	"
367	"	3	1	"	5	2	4	I	"
368	"	5	9	"	"	4	14	I	"
369	"	7	10	"	"	6	17	III	Etchu and Echigo, after-shocks continued for several days.
370	"	8	1	"	"	"	9	I	Kyoto.
371	"	9	28	"	"	8	8	I	"
372	"	10	27	"	"	9	8	I	"
373	"	12	31	"	"	11	13	I	"
374	864	8	26	"	6	7	17	III	Suruga. The

Fuji-san erupts.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
375	864	10	12	Jokan.	6	9	4	I	Kyoto.
376	"	11	3	"	"	"	26	I	"
377	"	"	9	"	"	10	3	I	Higo - The Aso-san
378	"	"	15	"	"	"	9	I	Kyoto. erupted. +
379	"	"	18	"	"	"	12	II	"
380	865	2	17	"	7	1	14	I	"
381	"	3	4	"	"	"	29	I	"
382	"	4	25	"	"	3	22	I	"
383	"	5	14	"	"	4	12	I	"
384	"	10	21	"	"	9	24	I	"
385	"	11	26	"	"	11	1	I	"
386	"	12	9	"	"	"	14	I	"
387	"	"	27	"	"	12	2	I	"
388	866	2	18	"	8	1	25	I	"
389	"	4	27	"	"	3*	5	I	"
390	"	7	26	"	"	6	7	I	"
391	"	8	4	"	"	"	16	I	"
392	"	10	1	"	"	8	15	I	"
393	"	12	3	"	"	10	19	I	"
394	"	"	21	"	"	11	7	I	"
395	867	1	23	"	"	12	10	I	"
396	"	3	4	"	9	1	20	I	Bungo, the Tsurumi-san erupted.
397	"	"	11	"	"	"	27	I	Kyoto.
398	"	"	14	"	"	2	1	I	"
399	"	6	21	"	"	5	12	III	Higo, the Aso-san erupted.
400	"	"	22	"	"	"	13	I	Kyoto.
401	"	8	7	"	"	6	30	I	"
402	"	9	1	"	"	7	25	I	"
403	"	"	19	"	"	8	14	I	"

#

—

+  
+

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
404	867	9	30	Jokan.	9	8	25	I	Kyoto.
405	"	10	11	"	"	9	6	I	"
406	"	11	8	"	"	10	5	I	"
407	868	5	13	"	10	4	13	I	"
408	"	"	28	"	"	"	28	I	"
409	"	6	18	"	"	5	19	I	"
410	"	8	3	"	"	7	8	III	" <i>Tamba of Settsu</i> Kyoto and Harima. after-shocks continued for three months.
411	"	11	19	"	"	10	27	I	Kyoto.
412	"	12	18	"	"	11	27	I	"
413	"	"	22	"	"	12	1	I	"
414	"	"	31	"	"	"	10	I	"
415	869	1	6	"	"	"	16	I	"
416	"	3	24	"	11	2	4	I	"
417	"	4	18	"	"	"	29	I	"
418	"	7	13	"	"	5	26	III	Mutsu. <i>accompanied by sea-waves</i>
419	"	8	22	"	"	7	7	I	Kyoto.
420	"	11	6	"	"	9	25	I	"
421	870	1	22	"	"	12	13	I	"
422	"	2	1	"	"	"	23	I	"
423	"	"	24	"	12	1	16	I	"
424	"	4	15	"	"	3	7	I	"
425	"	6	12	"	"	5	6	I	"
426	"	11	7	"	"	10	7	I	"
427	"	12	25	"	"	11	25	I	"
428	871	8	3	"	13	7	10	I	"
429	"	8	18	"	"	"	25	I	"
430	"	"	30	"	"	8	7	I	"
431	"	9	9	"	"	"	17	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
442	871	10	23	Jokan.	13	9	2	I	Kyoto.
433	"	11	18	"	"	"	28	I	"
434	872	1	10	"	"	11	22	I	"
435	"	"	17	"	"	"	29	I	"
436	"	3	9	"	14	1	22	I	"
437	"	5	12	"	"	3	27	I	"
438	"	7	29	"	"	6	16	I	"
439	"	8	6	"	"	"	24	I	"
440	"	"	11	"	"	"	29	I	"
441	"	9	7	"	"	7	27	I	"
442	"	10	10	"	"	9	1	I	"
443	"	11	8	"	"	"	30	I	"
444	"	"	10	"	"	10	2	I	"
445	"	12	24	"	"	11	17	I	"
446	"	"	30	"	"	"	23	I	"
447	873	1	4	"	"	"	28	I	"
448	"	"	9	"	"	12	3	I	"
449	"	2	25	"	15	1	20	I	"
450	"	3	8	"	"	2	2	I	"
451	"	"	24	"	"	"	18	I	"
452	"	4	20	"	"	3	16	I	"
453	"	5	18	"	"	4	14	II	"
454	"	"	22	"	"	"	18	I	"
455	"	"	28	"	"	"	24	I	"
456	"	6	3	"	"	5	1	I	"
457	"	"	13	"	"	"	11	I	"
458	"	7	16	"	"	6	14	I	"
459	"	10	12	"	"	9	13	I	"
460	"	11	26	"	"	10	29	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
461	874	3	10	Jokan.	16	2	14	I	Kyoto.
462	"	4	10	"	"	3	16	I	"
463	"	"	15	"	"	"	21	I	"
464	"	"	19	"	"	"	25	I	"
465	"	"	24	"	"	4	1	I	"
466	"	6	10	"	"	4*	18	I	"
467	"	"	15	"	"	"	23	I	"
468	"	"	25	"	"	5	4	I	"
469	"	8	10	"	"	6	21	I	"
470	"	"	21	"	"	7	2	I	"
471	"	11	3	"	"	9	17	I	"
472	"	12	29	"	"	11	13	I	"
473	875	2	12	"	"	12	29	II	"
474	"	3	27	"	17	2	12	I	"
475	"	4	2	"	"	"	18	I	"
476	"	"	13	"	"	"	29	I	"
477	"	"	22	"	"	3	9	I	"
478	"	"	27	"	"	"	14	I	"
479	"	7	20	"	"	6	10	I	"
480	"	8	21	"	"	7	13	I	"
481	"	9	17	"	"	8	10	I	"
482	"	"	23	"	"	"	16	I	"
483	876	6	13	"	18	5	14	I	"
484	"	"	14	"	"	"	15	I	"
485	"	"	20	"	"	"	21	I	"
486	"	7	16	"	"	6	18	I	"
487	"	8	25	"	"	7	28	I	"
488	"	12	2	"	"	11	9	I	"
489	877	5	1	Genkei.	1	3	11	II	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
490	877	7	1	Genkei.	1	5	13	I	Kyoto.
491	"	8	30	"	"	7	14	I	"
492	"	11	29	"	"	10	17	II	"
493	"	"	30	"	"	"	18	I	"
494	878	4	9	"	2	2	29	I	"
495	"	"	19	"	"	3	9	I	"
496	"	8	9	"	"	7	4	I	"
497	"	"	16	"	"	"	11	I	"
498	"	"	30	"	"	"	25	I	"
499	"	11	1	"	"	9	29	III	Sagami, Musashi.
500	"	"	11	"	"	10	9	I	Kyoto.
501	879	4	6	"	3	3	7	I	"
502	"	"	7	"	"	"	8	I	"
503	"	"	21	"	"	"	22	I	"
504	"	"	28	"	"	"	29	I	"
505	"	"	30	"	"	4	2	I	"
506	"	5	5	"	"	"	7	I	"
507	"	6	12	"	"	5	15	I	"
508	"	7	13	"	"	6	16	I	"
509	"	8	14	"	"	7	19	I	"
510	"	"	26	"	"	8	2	I	"
511	"	9	7	"	"	"	14	I	"
512	880	4	11	"	4	2	24	I	"
513	"	"	15	"	"	"	28	I	"
514	"	5	18	"	"	4	2	II	"
515	"	"	21	"	"	"	5	I	"
516	"	"	26	"	"	"	10	I	"
517	"	6	20	"	"	5	5	I	"
518	"	8	30	"	"	7	17	I	"

*Kanto provinces  
especially:*

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
519	880	11	10	Genkei.	4	10	1	I	Kyoto.
520	"	"	11	"	"	"	2	I	"
521	"	"	12	"	"	"	3	I	"
522	"	"	23	"	"	"	14	III	Izumo. <i>Strongly felt in Kyoto</i>
523	881	1	3	"	"	11	25	I	Kyoto.
524	"	"	11	"	"	12	4	II	"
525	"	"	13	"	"	"	6	III	Kyoto, after-shocks continued for one month.
526	"	2	12	"	5	1	6	I	Kyoto.
527	"	"	17	"	"	"	11	I	"
528	"	"	18	"	"	"	12	I	"
529	"	"	20	"	"	"	14	I	"
530	"	"	22	"	"	"	16	I	"
531	"	3	10	"	"	2	3	I	"
532	"	"	30	"	"	"	23	I	"
533	"	5	8	"	"	4	3	I	"
534	"	"	9	"	"	"	4	I	"
535	"	6	17	"	"	5	13	I	"
536	"	7	28	"	"	6	25	I	"
537	"	10	19	"	"	9	19	I	"
538	"	"	20	"	2	"	20	I	"
539	"	"	21	"	4	"	21	I	"
540	"	11	4	"	"	10	5	I	"
541	882	1	5	"	"	12	8	I	"
542	"	4	19	"	6	3	24	I	"
543	"	7	12	"	"	6	19	I	"
544	"	10	28	"	"	9	4	I	"
545	883	1	2	"	6	11	16	I	"
546	"	7	14	"	7	6	3	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
547	883	8	8	Genkei.	7	6	28	I	Kyoto.
548	"	11	6	"	"	10	29	I	"
549	884	5	16	"	8	4	14	I	"
550	"	"	18	"	"	"	16	I	"
551	"	7	29	"	"	6	29	I	"
552	"	12	1	"	"	11	6	I	"
553	885	3	10	Ninwa.	1	2	16	I	"
554	"	7	16	"	"	5	26	I	"
555	"	9	5	"	"	7	19	I	"
556	"	10	28	"	"	9	13	I	"
557	"	"	29	"	"	"	14	I	"
558	886	2	1	"	"	12	20	I	"
559	"	5	2	"	2	3	21	I	"
560	"	"	24	"	"	4	13	II	"
561	"	7	3	"	"	5	24	I	Awa, accompanied by falling of ashes.
562	"	"	24	"	"	6	15	II	Kyoto.
563	"	10	15	"	"	9	11	I	"
564	887	6	28	"	3	5	29	I	"
565	"	7	29	"	"	7	2	I	"
566	"	8	2	"	"	"	6	I	"
567	"	"	26	"	"	"	30	III	Kyoto and whole Japan, especially Settsu and Shinano, with sea-waves along the coast of Settsu; the after-shocks continued for one month.
568	"	10	29	"	"	10	5	I	Kyoto.
569	898	8	22	Shotai.	1	7	27	II	"
570	899	10	19	"	2	9	7	I	"
571	902	9	3	Yenki.	2	7	24	I	"
572	904	12	26	"	4	11	12	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
573	906	4	2	Yenki.	6	3	1	I	Kyoto.
574	909	3	6	"	9	2	7	I	"
575	911	2	19	"	11	1	13	I	"
576	912	2	6	"	12	1	11	I	"
577	"	4	16	"	"	3	21	I	"
578	916	8	5	"	16	6	29	I	"
579	925	1	19	Yencho.	2	12	17	I	"
580	926	2	20	"	4	1	1	I	"
581	"	6	7	"	"	4	19	I	"
582	928	4	6	"	6	3	8	I	"
583	"	5	14	"	"	4	17	I	"
584	"	6	25	"	"	6	1	I	"
585	931	2	7	Shohei.	1	1	12	I	"
586	"	3	28	"	"	3	2	I	"
587	932	3	9	"	2	1	25	I	"
588	"	5	4	"	"	3	21	I	"
589	"	"	14	"	"	4	1	I	"
590	"	8	6	"	"	6	26	I	"
591	934	7	16	"	4	5	27	III	Kyoto, after-shocks continued for two days.
592	"	"	22	"	"	6	3	I	"
593	"	12	3	"	"	10	19	I	"
594	935	3	10	"	5	1	28	I	"
595	"	"	31	"	"	2	19	I	"
596	"	4	1	"	"	"	20	I	"
597	"	5	17	"	"	4	7	I	"
598	"	"	25	"	"	"	15	II	"
599	938	5	22	Tengyo.	1	4	15	III	Kyoto Yamashiro and Yamato, after-shocks continued for two months.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
600	938	11	20	Tengyo.	1	10	21	I	Kyoto.
601	939	2	7	"	2	1	11	I	"
602	"	3	3	"	"	2	5	I	"
603	"	"	19	"	"	"	21	I	"
604	"	"	27	"	"	"	29	I	"
605	"	4	1	"	"	3	4	I	"
606	"	"	3	"	"	"	6	I	"
607	"	"	8	"	"	"	11	I	"
608	"	"	10	"	"	"	13	I	"
609	"	4	20	"	"	3	23	I	"
610	"	5	26	"	"	4	30	I	"
611	"	6	5	"	"	5	10	I	"
612	"	"	22	"	"	"	27	I	"
613	"	"	27	"	"	6	3	I	"
614	"	7	13	"	"	"	19	I	"
615	"	"	17	"	"	"	23	I	"
616	"	8	8	"	"	7	16	I	"
617	940	4	25	"	3	3	10	I	"
618	"	5	1	"	"	"	16	I	"
619	942	4	9	"	5	3	16	I	"
620	"	"	10	"	"	"	17	I	"
621	"	"	11	"	"	"	18	I	"
622	"	5	10	"	"	3 <sup>c</sup>	18	I	"
623	943	6	11	"	6	5	1	I	"
624	945	10	25	"	8	9	12	I	"
625	"	"	27	"	"	"	14	I	"
626	946	2	11	"	9	1	2	I	"
627	947	3	3	Tenreki.	1	2	3	I	"
628	949	"	16	"	3	2	9	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
629	958	3		Tentoku.	2			I	Kyoto.
630	965	10	22	Koho.	2	9	21	II	Kyoto, after-shocks continued for two days.
631	"	11	1	"	"	10	1	I	Kyoto.
632	968	5	11	Anwa.	1	4	7	I	"
633	"	9	4	"	"	8	4	I	"
634	971	5	8	Tenroku.	2	4	6	I	"
635	"	8	4	"	"	7	6	I	"
636	972	4	5	"	3	2*	14	II	"
637	973	5	4	Tenyen.	1	3	24	I	"
638	"	10	30	"	"	9	27	II	"
639	976	5	17	Jogen.	1	4	11	II	"
640	"	7	22	"	"	6	18	III	<i>Kyoto</i> Yamashiro and Omi, after-shocks continued for four months.
641	977	3	1	"	2	2	4	I	Kyoto.
642	"	"	6	"	"	"	9	II	"
643	978	12	27	Tengen.	1	11	20	I	"
644	984	11	13	Yeikan.	2	10	13	I	"
645	"	12	8	"	"	11	8	II	"
646	986	8	18	Kanwa.	2	7	6	I	"
647	989			Yeiso.	1			I	"
648	990	11	20	Seireki.	1	10	25	I	"
649	994	12	4	"	5	"	24	II	"
650	996	4	27	Chotoku.	2	4	2	I	"
651	"	7	19	"	"	6	26	II	"
652	997	7	4	"	3	5	22	II	"
653	"	11	10	"	"	10	3	II	"
654	1027	4	18	Manju.	4	3	2	II	"
655	1032	4	23	Chogen.	5	3	5	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
656	1036	1	21	Chogen.	8	12	14	I	Kyoto.
657	1040	8	13	Chokiu.	1	6	27	I	"
658	"	10	22	"	"	9	8	II	"
659	"	12	13	"	"	11	1	II	"
660	1041	8	25	"	2	7	20	III	"
661	1050	10	31	Yeisho.	5	10	7	I	"
662	1055	7	10	Tenki.	3	6	7	I	"
663	1060	7	24	Kohei.	3	6	18	I	"
664	1061	6	2	"	4	5	6	I	"
665	"	"	3	"	"	"	7	I	"
666	1063	4	5	"	6	2	28	I	"
667	"	"	7	"	"	"	30	I	"
668	"	"	18	"	"	3	11	I	"
669	1065	5	8	Jireki.	1	3	24	I	"
670	"	6	19	"	"	5	7	II	"
671	1066	5	10	"	2	4	8	I	"
672	1070	3	16	Yenkiu.	"	1	25	I	"
673	"	12	1	"	"	10	20	III	Kyoto, Nura. <i>by several</i>
674	"	"	4	"	"	"	23	I	Kyoto. <i>morinos.</i>
675	1071	1	1	"	"	11	21	I	"
676	1074	2	24	Shoho.	1	1	20	I	"
677	"	"	26	"	"	"	22	I	"
678	"	3	18	"	"	2	12	I	"
679	1076	1	22	"	3	1	9	I	"
680	1091	9	28	Kanji.	5	8	7	III	"
681	1092	12	17	"	6	11	10	II	"
682	1093	3	19	"	7	2	14	II	"
683	1096	12	17	Yeicho.	1	11	24	III	Kyoto, after-shocks continued for one month.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
684	1097	8	20	Shotoku.	1	7	5	I	Kyoto.
685	"	"	21	"	"	"	6	II	"
686	"	9	20	"	"	8	6	I	"
687	"	"	22	"	"	"	8	I	"
688	1099	2	22	Kowa.	1	1	24	II	"
689	1103	6	5	"	5	4	22	II	"
690	"	"	7	"	"	"	24	I	"
691	"	"	14	"	"	5	1	I	"
692	1111	5	13	Tenyei.	2	3	27	I	"
693	1124	3	25	Tenji.	1	2*	1	II	"
694	1132	10	25	Chosho.	1	9	8	I	"
695	"	11	13	"	"	"	27	I	"
696	1133	1	25	"	"	12	6	I	"
697	"	10	5	"	2	8	28	I	"
698	1135	5	9	Hoyen.	1	3	18	II	"
699	1136	3	9	"	2	1	28	I	"
700	1137	8	10	"	3	7	15	III?	Kyoto, followed by minor shocks.
701	1142	4	15	Kuji.	1	3	11	I	Kyoto.
702	"	9	16	"	"	8	18	I	"
703	1143	3	8	"	2	2	14	I	"
704	"	11	25	"	"	10	10	II	"
705	1144	1	3	"	2	11	20	I	"
706	"	"	7	"	"	"	24	II	"
707	"	"	9	"	"	"	26	I	"
708	"	5	27	Tenyo.	1	4	16	I	"
709	"	"	28	"	"	"	17	I	"
710	"	6	22	"	"	5	13	II	"
711	"	8	13	"	1	7	6	I	"
712	"	"	18	"	"	"	11	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
713	1145	1	8	Tenyo.	1	12	7	I	Kyoto.
714	"	3	15	Kiu-an.	"	2	13	I	"
715	"	11	25	"	"	10*	3	I	"
716	1153	10	17	Ninpei	3	9	21	II	"
717	1154	4	4	Kinju.	1	2	13	I	"
718	1155	9	10	"	2	8	5	II	"
719	1164	3	27	Chokan.	"	2	26	II	"
720	1165	7	20	Yeiman.	1	6	4	II	"
721	"	"	21	"	"	"	5	II	"
722	1169	2	4	Nin-an.	3	12	29	I	"
723	1177	11	26	Jisho.	1	10	27	III	Nara. Strongly felt at Kyoto.
724	1178	6	24	"	2	5	30	I	Kyoto
725	1179	7	11	"	3	5	28	I	"
726	"	"	14	"	"	6	1	I	"
727	"	"	30	"	"	"	17	I	"
728	"	12	14	"	"	11	7	II	"
729	1180	4	26	"	4	3	23	I	"
730	"	12	21	"	"	11	26	III	Kii.
731	1181	1	15	"	"	12	21	I	Kyoto.
732	1183	11	7	Juyei.	2	10	14	II	"
733	1184	2	12	"	"	12	22	II	"
734	"	11	26	Genreki.	1	10	15	I	Kamakura.
735	1185	7	25	Bunji.	1	6	20	II	Kamakura, Kyoto.
736	"	8	13	"	"	7	9	III	Kyoto, after-shocks continued for three months.
737	1186	10	3	"	1	7	9	III	Kyoto.
738	1187	11	20	"	3	10	12	II	Kyoto.
739	1191	4	8	Kenkin.	2	3	6	II	Kamakura.
739	1195	"	30	"	6	3	12	I	"
740	1199	2	4	Seiji.	1	1	1	I	Kyoto.

736

Kyoto

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
741	1199	6	18	Seiji.	1	5	16	II	Kamakura.
742	1201	4	21	Kennin.	"	3	10	I	"
743	1202	2	29	Genkiu.	2	1	28	II	"
744	1203	2	15	"	"	12	24	I	"
745	1204	11	6	"	1	10	6	II	"
746	1205	1	25	Shogen.	"	12	27	II	Kyoto.
747	"	"	27	"	"	"	29	I	"
748	1207	5	14	"	1	4	9	II	"
749	1208	1	31	"	2	1	6	II	Kamakura.
750	"	9	8	"	"	7	20	I	"
751	1209	5	13	Kenreki.	3	4	1	I	"
752	1210	10	29	"	4	10	3	I	"
753	1211	2	19	"	1	1	27	II	"
754	"	7	4	Kenpo.	"	5	15	I	"
755	"	8	19	"	"	7	3	II	"
756	1213	1	31	"	1	1	1	I	"
757	"	6	18	"	"	5	21	III	"
758	"	8	2	"	"	7	7	II	"
759	"	9	22	"	"	8	29	I	"
760	"	10	9	"	"	9	17	II	"
761	1214	3	20	"	2	2	1	I	"
762	"	"	26	"	"	"	7	II	"
763	"	5	20	"	"	4	3	II	Kamakura, Kyoto.
764	"	11	2	"	"	9	22	II	Kamakura.
765	1215	9	23	"	3	8	21	I	"
766	"	"	24	"	"	"	22	I	"
767	"	10	7	"	"	9	6	III?	"
768	"	"	9	"	"	"	8	II?	"
769	"	10	12	"	"	9	11	II?	"

No	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
770	1220	2	24	Shokuin.	2	1	12	I	Kamakura.
771	"	4	17	"	"	3	6	I	Kyoto.
772	1221	1	4	"	"	12	2	I	Kamakura.
773	"	3	1	"	3	1	29	I	"
774	"	10	25	"	"	10	2	I	"
775	1224	6	3	Gennin.	1	5	8	II	Kyoto.
776	1225	3	2	Karoku	1	1	15	I	Kamakura.
777	"	4	27	"	"	3	11	I	"
778	"	7	1	"	"	5	17	I	"
779	"	11	19	"	"	10	11	II	"
780	1226	5	4	"	2	3	29	I	"
781	"	"	31	"	"	4	27	II	"
782	"	7	30	"	"	6	26	I	"
783	"	"	31	"	"	"	27	I	"
784	"	8	1	"	"	"	28	I	"
785	"	"	2	"	"	7	1	I	"
786	"	9	1	"	"	8	1	II	"
787	"	11	4	"	"	10	6	I	"
788	1227	2	8	Antei.	1	1	14	I	"
789	"	4	1	"	"	3	7	III	"
790	"	"	9	"	"	"	15	I	"
791	"	6	5	"	"	4	13	I	"
792	"	"	18	"	"	"	26	I	"
793	"	7	3	"	"	5	11	I	"
794	"	10	21	"	"	9	3	II	"
795	"	12	22	"	"	11	6	III	"
796	1229	11		Kanki.	1	11		I	"
797	1234	10	17	Bunreki.	1	9	16	II	Kyoto.
798	1235	4	5	Katei.	1	3	9	III	Kamakura.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
799	1235	4	12	Katei.	1	3	16	II	Kamakura.
800	"	5	8	"	"	4	13	I	"
801	"	"	26	"	"	5	1	I	"
802	"	7	9	"	"	6	16	I	"
803	"	8	14	"	"	6*	22	I	"
804	"	10	21	"	"	9	1	II	Kyoto.
805	"	11	18	"	"	"	29	I	Kamakura.
806	1236	4	12	"	2	2	28	I	"
807	"	7	22	"	"	6	11	I	"
808	1237	5	10	"	3	4	7	I	"
809	"	7	1	"	"	6	1	II	Kyoto.
810	"	10	8	"	"	9	11	I	Kamakura.
811	"	"	20	"	"	"	23	I	"
812	"	"	21	"	"	"	24	I	"
813	1239	1	22	Rekinin.	1	12	9	I	"
814	"	12	15	Yen-o.	"	11	12	II	"
815	1240	2	14	Ninji.	"	1	13	II	"
816	"	5	18	"	"	4	18	I	"
817	1241	3	5	"	2	1	14	I	"
818	"	"	27	"	"	2	7	III	Kamakura and Kanto.
819	"	4	25	"	"	3	6	I	Kamakura.
820	"	5	4	"	"	"	15	I	"
821	"	"	22	"	"	4	3	III	Kamakura, accom- panied by sea-waves.
822	"	8	19	"	"	7	4	I	Kamakura.
823	"	11	24	"	"	10	13	I	"
824	1243	6	18	Kangen.	1	5	23	II	"
825	1244	7	27	"	2	6	14	I	"
826	"	8	13	"	"	7	2	I	Kyoto.
827	"	10	21	"	"	9	11	I	Kamakura.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
828	1245	1	7	Kangen.	2	12	1	I	Kamakura.
829	"	2	23	"	3	1	18	I	"
830	"	"	25	"	"	"	20	I	Kyoto.
831	"	4	14	"	"	3	9	I	"
832	"	5	9	"	"	4	5	I	"
833	"	"	11	"	"	"	7	I	"
834	"	6	1	"	"	"	28	I	"
835	"	"	9	"	"	5	8	I	"
836	"	"	26	"	"	"	25	I	"
837	"	"	27	"	"	"	26	I	"
838	"	"	28	"	"	"	27	I	"
839	"	"	29	"	"	"	28	I	"
840	"	8	26	"	"	7	26	III	"
841	1246	1	16	"	"	12	20	II	Kamakura.
842	"	"	31	"	4	1	6	II	"
843	"	6	28	"	"	5	7	I	"
844	"	8	21	"	"	7	2	I	"
845	"	"	24	"	"	"	5	I	"
846	"	11	26	"	"	10	10	I	Kyoto.
847	1247	1	12	"	"	11	27	II	Kamakura.
848	"	"	20	"	"	12	5	II	Kyoto.
849	"	2	26	Kanji.	1	1	13	I	"
850	"	4	26	"	"	3	13	I	"
851	"	7	20	"	"	6	10	I	"
852	"	"	29	"	"	"	19	I	"
853	"	11	13	"	"	10	8	II	Kamakura.
854	"	12	31	"	"	11	26	II	"
855	1248	1	3	"	"	11	29	I	"
856	1250	8	24	Kencho.	2	7	18	III	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
857	1251	2	18	Kencho.	3	1	19	I	Kyoto.
858	"	10	10	"	"	9	17	I	"
859	"	12	14	"	"	10	23	I	Kamakura.
860	1252	6	22	"	4	5	7	I	"
861	1253	4	1	"	5	2	25	II	"
862	"	5	8	"	"	4	3	I	"
863	"	7	14	"	"	6	10	II	"
864	"	10	16	"	"	9	16	I	"
865	<del>1253</del>	"	17	"	"	"	17	I	Kyoto.
866	1254	3	16	"	6	2	19	I	"
867	1255	1	5	"	"	11	18	II	Kamakura.
868	1257	7	8	Shōka Seika.	1	5	18	II	"
869	"	9	17	"	"	8	1	II	"
870	"	10	9	"	"	"	23	III	"
871	"	11	29	"	"	10	15	I	"
872	"	12	22	"	"	11	8	II	"
873	1258	6	2	"	2	4	22	I	"
874	1259	1	18	"	"	12	16	I	"
875	1260	5	13	Bun-o.	1	3	25	I	"
876	1263	7	6	Kocho.	3	5	19	I	"
877	1264	4	2	Bunyei.	1	2	27	I	Kyoto.
878	"	11	2	"	"	10	5	II	"
879	1265	2	9	"	2	1	15	I	Kamakura.
880	"	4	3	"	"	3	9	II	"
881	"	"	30	"	"	4	6	I	Kyoto.
882	1266	8	3	"	3	6	24	II	Kamakura.
883	1268	6	22	"	5	5	4	II	Kyoto.
884	1269	12	17	Bunyei.	6	11	16	I	Omi.
885	1273	4	5	"	10	3	9	III	Aizu. (Washizō)

885. 1293. 1. 27 Yeimin 1 4 13 III Kamakura and  
Kawabata

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
886	1302	6	9	Kengen.	1	5	5	I	Kyoto.
887	1317	2	24	Bunpo.	1	1	5	II	"
888	1323	6	15	Genkyo.	3	5	3	I	Kamakura.
889	1325	12	5	Seichu.	2	10	21	III	Kinai provinces, strongly felt in Kyoto.
890									
891	1331	8	15	Genko.	1	7	3	III	Kii. & several other provinces
"	"	"	19	"	"	"	7	III	Suruga. The Fuji-San erupted.
892	1334	10	3	Kenbu.	1	8	27	II	Kyoto.
893	1335	1	16	"	"	12	13	II	"
894	1338	8	13	Yengen.	3	7	19	II	"
895	"	"	16	"	"	"	22	I	"
896	1339	10	15	"	4	9	4	II	"
897	"	12	16	"	"	11	7	I	Kamakura.
898	1340	3	3	Kokoku.	1	1	26	II	Kyoto.
899	1341	3	9	"	2	2	13	I	"
900	"	4	2	"	"	3	8	II	Kamakura.
901	"	11	3	"	"	9	16	II	Kyoto.
902	1342	7	26	"	3	6	15	I	"
903	1344	2	5	"	5	1	12	I	"
904	"	10	23	"	"	9	9	I	"
905	1345	7	14	"	6	6	7	I	"
906	"	"	26	"	"	"	19	I	Nara.
907	"	9	21	"	"	8	17	I	Kyoto.
908	1346	8	29	Shohei.	1	"	4	II	"
909	1347	1	13	"	"	11	23	I	"
910	"	"	22	"	"	12	2	I	"
911	"	3	5	"	2	1	15	I	"
912	"	3	10	"	"	"	20	II	"
913	"	6	23	"	"	5	6	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
914	1347	8	12	Shohei.	2	6	27	II	Kyoto.
915	"	10	11	"	"	8	28	I	"
916	"	11	4	"	"	9	23	I	"
917	"	"	14	"	"	10	3	I	"
918	"	"	15	"	"	"	4	I	"
919	"	12	26	"	"	11	16	I	"
920	"	"	30	"	"	"	20	I	"
921	"	"	31	"	"	"	21	I	"
922	1348	1	26	"	"	12	18	I	"
923	"	2	17	"	3	1	10	I	"
924	1349	5	8	"	4	4	13	I	"
925	"	"	9	"	"	"	14	I	"
926	"	9	10	"	"	7	19	II	"
927	1350	7	6	"	5	5	23	III	"
928	"	"	8	"	"	"	25	II	"
929	"	"	12	"	"	"	29	I	Kyoto, three shocks.
930	"	"	22	"	"	6	10	I	Kyoto.
931	"	"	23	"	"	"	11	I	"
932	"	8	1	"	"	"	20	I	"
933	"	"	3	"	"	"	22	II	"
934	"	"	6	"	"	"	25	I	Kyoto, two shocks.
935	"	"	13	"	"	7	2	I	Kyoto.
936	"	12	21	"	"	11	14	I	"
937	1351	3	25	"	6	2	19	II	"
938	"	4	21	"	"	3	17	I	"
939	"	5	15	"	"	4	11	I	"
940	"	10	9	"	"	9	11	I	"
941	"	12	16	"	6	11	19	I	Kyoto, two or three shocks.
942	1352	1	26	"	7	1	1	I	Kyoto.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
943	1352	2	9	Shohei.	7	1	15	I	Kyoto.
944	"	4	8	"	"	2 <sup>o</sup>	"	I	"
945	1355	12	30	"	10	11	18	I	"
946	1356	6	16	"	11	5	9	I	"
947	"	8	7	"	"	7	3	I	"
948	"	"	15	"	"	"	11	I	"
949	"	9	15	"	"	8	12	I	"
950	"	"	17	"	"	9	15	I	"
951	1357	2	15	"	12	1	18	I	"
952	"	7	26	"	"	7	1	I	"
953	"	8	11	"	"	"	17	I	"
954	"	9	9	"	"	7 <sup>o</sup>	17	I	"
955	"	11	1	"	"	9	11	I	"
956	1358	3	14	"	13	1	26	I	"
957	"	"	20	"	"	2	2	I	"
958	"	"	29	"	"	"	11	I	"
959	"	5	3	"	"	3	17	I	"
960	"	5	30	"	"	4	14	I	"
961	"	7	9	"	"	5	24	II	"
962	"	"	16	"	"	6	2	I	"
963	"	8	28	"	"	7	15	I	"
964	"	10	15	"	"	9	4	II	"
965	"	12	27	"	"	11	18	I	"
966	1359	7	5	"	14	6	2	I	"
967	"	11	17	"	"	10	18	I	"
968	1360	2	26	"	15	2	1	I	"
969	"	3	3	"	"	"	7	I	"
970	1361	"	8	Jokan.	16	1	23	I	"
971	"	7	31	"	"	6	21	II	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
972	1361	8	1	Jokan.	16	6	22	III	Kyoto, Kii, Yamato and Settsu, with sea-waves along the coast of Awa (in Shikoku); strongly felt in Kyoto.
973	"	"	3	"	"	"	24	III	Kyoto, Kawachi, Settsu, Yamato, Kii and Awa, with sea-waves along the coasts of Settsu and Awa (in Shikoku); strongly felt in Kyoto, where after-shocks continued for several days.
974	"	"	10	"	"	7	1	I	Kyoto.
975	"	"	13	"	"	"	4	II	"
976	"	"	20	"	"	"	11	III	Yamato.
977	"	9	8	"	"	8	1	I	Kyoto.
978	"	12	19	"	"	11	14	II	"
979	1362	6	17	"	17	5	17	II	"
980	"	9	2	"	"	8	5	I	"
981	"	10	30	"	"	10	4	I	"
982	"	11	6	"	"	"	11	I	"
983	"	"	19	"	"	"	24	I	"
984	"	12	13	"	"	11	19	I	"
985	"	"	16	"	"	"	22	I	"
986	"	"	22	"	"	"	28	I	"
987	1362	12	26	"	"	12	2	I	Kyoto, two shocks.
988	"	"	29	"	"	"	5	II	Kyoto.
989	"	"	30	"	"	"	6	I	"
990	1363	3	8	"	18	1	14	I	Kyoto, two shocks.
991	"	"	9	"	"	"	15	I	Kyoto.
992	"	"	27	"	"	2	4	II	"
993	"	4	2	"	"	"	10	I	Kyoto, two or three shocks.
994	"	"	10	"	"	"	18	II	Kyoto.

Kawachi  
1361  
Settsu

Bunri  
Awoji

###

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
995	1363	8	31	Shohei.	18	7	14	II	Kyoto.
996	"	9	19	"	"	8	4	II	"
997	"	12	22	"	"	11	9	II	"
998	1364	10	14	"	19	9	11	I	"
999	1367	2	16	"	22	1	9	II	"
1000	"	3	11	"	"	2	2	I	"
1001	"	"	25	"	"	"	16	II	"
1002	"	6	19	"	"	5	14	I	"
1003	"	7	24	"	"	6	19	I	"
1004	"	"	30	"	"	"	25	I	"
1005	"	9	14	"	"	8	12	I	"
1006	"	"	23	"	"	"	21	II	"
1007	1368	2	15	"	23	1	18	I	"
1008	"	7	29	"	"	6 <sup>2</sup>	6	I	"
1009	1369	9	7	"	24	7	28	II	"
1010	1370	9	26	Kentoku.	1	8	18	I	Kamakura.
1011	1371	4	13	"	2	3	19	II	Kyoto.
1012	"	10	13	"	"	8	26	I	"
1013	"	"	14	"	"	"	27	II	"
1014	1372	8	5	Bunchu.	1	6	17	I	"
1015	1373	1	26	"	"	12	24	I	"
1016	"	3	4	"	2	2	2	I	"
1017	"	5	2	"	"	4	1	II	"
1018	"	"	13	"	"	"	12	I	"
1019	"	9	15	"	"	8	20	I	"
1020	"	12	14	"	"	10 <sup>2</sup>	22	II	"
1021	1375	5	23	Tenju.	1	4	14	III	Aizu. (Iwashiro)
1022	"	7	18	"	"	6	11	I	Kyoto.
1023	"	"	30	"	"	"	23	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1024	1376	5	22	Tenju.	2	4	25	II	Kyoto.
1025	1378	11	27	"	4	10	29	II	"
1026	1379	11	26	"	5	"	9	II	"
1027	1380	5	29	"	6	4	17	I	"
1028	1381	3	20	Kowa.	1	2	16	I	"
1029	"	5	22	"	"	4	20	I	"
1030	"	6	29	"	"	5	29	I	"
1031	1383	5	29	"	3	4	19	I	"
1032	"	6	3	"	"	"	24	II	"
1033	"	"	5	"	"	"	26	I	"
1034	"	"	8	"	"	"	29	I	"
1035	1388	2	5	Genchu.	4	12	19	III	Aizu. (Iwasing)
1036	1389	10	3	"	6	9	6	II	Kyoto.
1037	1391	11	20	"	8	10	16	II	"
1038	1395	1	3	O-yei.	1	12	4	I	"
1039	"	3	24	"	2	2	25	II	"
1040	1398	10	27	"	5	9	9	I	"
1041	"	"	29	"	"	"	11	I	"
1042	1400	9	14	"	7	8	17	I	"
1043	"	11	19	"	"	10	24	III	Ise; slightly felt in Kyoto.
1044	1401	12	11	"	8	"	27	I	Kyoto.
1045	1402	3	12	"	9	1	29	II	"
1046	1403	"	17	"	10	2	15	I	Kyoto and Aizu.
1047	"	12	12	"	"	10*	19	I	Kyoto.
1048	"	"	25	"	"	11	3	I	"
1049	1405	8	17	"	12	7	14	II	"
1050	"	10	"	"	"	9	15	I	"
1051	"	12	20	"	13	11	1	II	"
1052	1407	2	21	"	14	1	5	III	Kyoto and Aizu.

*Some of the above are possibly felt in Kyoto.*

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1053	1408	1	21	O-yei.	14	12	14	III	Settsu, accompanied by sea-waves; slightly felt in Kyoto.
			<i>on 27</i>	"					
1054	"	3	5	"	15	1	28	I	Kyoto.
1055	"	11	13	"	"	10	16	I	Kyoto, two shocks.
1056	"	"	26	"	"	"	29	III	Kyoto.
1057	1409	1	8	"	"	12	13	I	"
1058	"	8	16	"	16	6	26	I	"
1059	1410	3	11	"	17	1	27	II	"
1060	"	5	12	"	"	3	29	I	"
1061	1411	6	6	"	18	5	6	II	"
1062	"	8	22	"	"	7	24	I	"
1063	"	11	4	"	"	10	9	I	"
1064	"	12	24	"	"	11	1	II	"
1065	1412	3	5	"	19	1	13	I	Kyoto, two shocks.
1066	"	"	7	"	"	"	15	I	Kyoto.
1067	"	4	19	"	"	2	29	II	"
1068	"	6	1	"	"	4	13	I	"
1069	"	7	14	"	"	5	26	I	"
1070	1413	12	17	"	20	11	15	II	"
1071	1419	6	11	"	26	5	9	I	"
1072	"	9	22	"	"	8	24	I	"
1073	"			"	"	10		II	Kanto.
1074	1420	8	15	"	27	6	27	II	Kyoto.
1075	"	9	26	"	"	8	10	III	Kamakura. ( <i>Sagami</i> )
1076	1421	11	16	"	28	10	13	I	Kyoto.
1077	1422	1	5	"	"	12	3	I	"
1078	"	10	25	"	29	10	1	I	"
1079	1423	3		"	30	3		I	"
1080	"	12		"	"	12		I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1081	1424	6	1	O-yei.	31	4	25	I	Kyoto.
1082	"	10	26	"	"	9	"	I	"
1083	"	"	27	"	"	"	26	I	"
1084	"	"	28	"	"	"	27	I	"
1085	1425	1	3	"	"	12	5	II	"
1086	"	8	10	"	32	6 <sup>o</sup>	17	II	"
1087	"	"	23	"	"	7	1	I	"
1088	"	"	24	"	"	"	2	II	"
1089	"	9	"	"	"	8	4	I	"
1090	"	"	27	"	"	"	7	I	"
1091	"	"	"	"	"	9	"	I	"
1092	"	12	13	"	"	10	24	I	"
1093	"	"	23	"	"	11	5	III	"
1094	"	"	28	"	"	"	10	II	"
1095	"	"	30	"	"	"	12	I	"
1096	"	"	31	"	"	"	13	I	"
1097	1426	1	3	"	"	"	16	I	"
1098	"	"	9	"	"	"	22	I	"
1099	"	"	28	"	"	12	11	I	"
1100	"	"	29	"	"	"	12	I	"
1101	"	"	30	"	"	"	13	I	"
1102	"	2	2	"	"	"	16	I	"
1103	"	4	19	"	33	2	22	I	"
1104	"	6	18	"	"	5	4	I	"
1105	"	"	27	"	"	"	13	I	"
1106	"	7	31	"	"	6	18	I	"
1107	"	10	18	"	"	9	9	I	Kyoto, two shocks.
1108	"	"	31	"	"	"	22	II	Kyoto.
1109	"	11	27	"	"	10	19	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1110	1426	12	18	O-yei.	33	11	11	I	Kyoto.
1111	"	"	31	"	"	"	24	I	"
1112	1427	1	3	"	"	"	27	I	"
1113	"	"	26	"	"	12	20	I	"
1114	"	"	29	"	"	"	23	I	"
1115	"	2	1	"	"	"	26	I	"
1116	1428	11	4	Shocho.	1	9	18	II	"
1117	1429	4	17	Yeikyo.	"	3	5	I	"
1118	1431	3	11	"	3	1	18	I	"
1119	"	12	10	"	"	10	27	I	"
1120	"	"	25	"	"	11	12	I	"
1121	1432	4	21	"	4	3	"	II	Kamakura.
1122	1433	2	23	"	5	1	24	III	Ise and Omi ; strongly felt in Kyoto.
1123	"	4	16	"	"	3	17	II	Kyoto; shocks again on the 20th, 25th, 26th and 27th of the same month.
1124	"	5	21	"	"	4	23	I	Kyoto.
1125	"	6	17	"	"	5	21	II	Kamakura.
1126	"	"	18	"	"	"	22	I	Kyoto.
1127	"	11	6	"	"	9	15	I	"
1128	"	"	7	"	"	"	16	III	Shimosa, Aizu, Sagami and Kai ; strongly felt in Kyoto.
1129	"	"	10	"	"	"	19	I	Kyoto.
1130	"	12	17	"	"	10	27	II	"
1131	1434	3	6	"	6	1	16	II	Kamakura.
1132	"	"	12	"	"	"	22	I	Kyoto.
1133	"	"	25	"	"	2	6	I	"
1134	"	4	25	"	"	3	7	I	"
1135	"	7	14	"	"	5	29	II	"
1136	"	11	9	"	"	9	29	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1137	1434	12	5	Yeikyo.	6	10	26	I	Kyoto.
1138	1435	1	9	"	"	12	1	I	"
1139	"	"	21	"	"	"	13	I	"
1140	"	"	22	"	"	"	14	I	"
1141	"	3	6	"	7	1	27	I	"
1142	"	7	17	"	"	6	13	I	"
1143	"	8	9	"	"	7	6	I	"
1144	"	"	16	"	"	"	13	II	"
1145	1436	8	2	"	8	6	11	I	"
1146	"	"	30	"	"	7	9	III	Aizu. Iwashiro
1147	1437	2	3	"	"	12	19	I	Kyoto.
1148	"	5	4	"	9	3	20	I	"
1149	1438	3	13	"	10	2	9	I	"
1150	"	4	18	"	"	3	15	I	"
1151	"	7	6	"	"	6	5	I	"
1152	1439	1	12	"	"	12	18	I	"
1153	"	"	22	"	"	"	28	II	"
1154	1440	10	22	"	12	9	18	III	Aizu; strongly felt in Kyoto.
1155	1442	3	12	Kakitsu.	2	1	21	II	Kyoto.
1156	"	4	4	"	"	2	14	I	"
1157	"	12	1	"	"	10	20	III	Kotsuke.
1158	1443	2	19	"	3	1	11	I	Kyoto.
1159	"	4	30	"	"	3	21	I	"
1160	"	7	26	"	"	6	20	II	"
1161	"	11	1	"	"	10	1	I	"
1162	"	12	8	"	"	11	8	I	"
1163	1444	5	23	Bun-an.	1	4	27	II	"
1164	1445	1	9	"	"	11	22	III	Kyoto; after-shocks continued for one month.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1165	1446	4	4	Bunan.	3	2	29	I	Kyoto.
1166	1447	8	14	"	4	6	24	II	"
1167	1448			"	5			III	Several provinces.
1168	1449	5	13	Hotoku.	1	4	12	III	Yamashiro and Yama- to; after shocks con- tinued for 1 month.
1169	"	9	8	"	"	8	12	I	Kyoto.
1170	"	"	15	"	"	"	19	I	"
1171	"	10	6	"	"	9	11	I	"
1172	"	"	13	"	"	"	18	I	"
1173	"	12	27	"	"	11	5	I	"
1174	1450	8	20	Hotoku.	2	7	5	I	"
1175	"	9	11	"	"	"	27	I	"
1176	"	"	12	"	"	"	28	I	"
1177	1451	8	8	"	3	7	3	I	"
1178	"	10	6	"	"	9	3	I	"
1179	"	12	20	"	"	11	18	I	"
1180	1452	1	10	"	"	12	10	II	Kamakura.
1181	"	9	5	Kyotoku.	1	8	13	II	Kyoto.
1182	1454	12	21	"	3	11	23	III	Kotsuke.
1183	1455	1	7	"	"	12	10	II	Kamakura.
1184	1456	2	14	Kosei.	1	"	29	II	Kyoto.
1185	1457	1	1	"	2	11	26	I	"
1186	1458	2	25	Choroku.	2	1*	3	II	"
1187	"	4	7	"	"	2	15	II	"
1188	"	9	10	"	"	7	24	I	"
1189	1459	2	25	"	3	1	13	I	"
1190	1460	3	12	Kansei.	1	2	9	II	Kyoto; slightly felt at Nara.
1191	"	"	13	"	"	"	10	I	Nara.
1192	"	"	22	"	"	"	19	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1193	1460	3	24	Kansei.	1	2	21	I	Nara.
1194	"	6	23	"	"	5	25	II	Kyoto.
1195	"	8	13	"	"	7	18	I	"
1196	"	9	1	"	"	8	7	I	"
1197	"	"	9	"	"	"	15	I	"
1298	"	"	28	"	"	9	5	I	"
1299	"	10	17	"	"	"	24	I	"
1200	"	"	19	"	"	"	26	I	"
1201	"	11	15	"	"	9 <sup>o</sup>	23	I	"
1202	"	"	16	"	"	"	24	I	"
1203	"	"	18	"	"	"	26	I	"
1204	"	11	27	"	"	10	6	II	"
1205	1462	1	9	"	2	11	30	II	"
1206	1464	5	22	"	5	4	7	II	"
1207	1465	7	4	"	6	6	2	I	Nara.
1208	"	11	5	"	"	10	8	I	Kyoto.
1209	1466	4	6	Bunsei.	1	2 <sup>o</sup>	12	I	"
1210	"	5	29	"	"	4	6	III	Yamashiro and Yama- to.
1211	"	6	17	"	"	"	25	I	Kyoto.
1212	"	"	18	"	"	"	26	I	"
1213	"	11	9	"	"	9	22	I	"
1214	1467	2	12	"	"	12	29	II	"
1215	"	"	13	"	"	"	30	I	"
1216	"	2	14	O-nin.	1	1	1	I	Nara.
1217	"	4	10	"	"	2	27	II	Kyoto; slightly felt at Nara.
1218	"	7	11	"	"	6	2	I	Kyoto.
1219	"	10	27	"	"	9	20	I	"
1220	"	"	29	"	"	"	22	I	"
1221	"	12	13	"	"	11	8	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1222	1468	1	30	O-nin.	1	12	26	I	Kyoto.
1223	"	2	22	"	2	1	20	I	"
1224	"	3	9	"	"	2	6	II	"
1225	"	6	4	"	"	5	5	I	"
1226	"	7	19	"	"	6	21	I	"
1227	"	11	11	"	"	10	18	I	"
1228	1470	5	27	Bunmei.	2	4	18	I	Nara.
1229	1471	2	5	"	3	1	7	II	Nara; slightly felt in Kyoto.
1230	"	"	6	"	"	"	8	I	Nara.
1231	"	3	30	"	"	2	30	I	"
1232	"	4	4	"	"	3	5	I	"
1233	"	6	11	"	"	5	14	II	Kyoto.
1234	"	"	14	"	"	"	17	I	"
1235	1474	Winter.		"	6	Winter.		III	(District obscure).
1236	1475	2	16	"	7	1	2	I	Kyoto.
1237	"	3	24	"	"	2	8	II	"
1238	"	5	29	"	"	4	16	III	Aizu. (Iwashiro)
1239	"	11	13	"	"	10	6	I	"
1240	1476	5	19	"	8	4	17	I	Nara.
1241	"	7	16	"	"	6	16	I	Kyoto, three shocks.
1242	1477	1	27	"	9	1	4	I	"
1243	"	11	6	"	"	9	22	I	Nara.
1244	"	12	20	"	"	11	6	II	Kyoto.
1245	"	"	23	"	"	"	9	I	"
1246	1479	5	3	"	11	4	3	I	"
1247	"	9	27	"	"	9	3	III	Aizu. (Iwashiro)
1248	1481	3	12	"	13	2	3	I	Kyoto.
1249	"	4	26	"	"	3	19	II	Nara, two shocks.
1250	"	8	21	"	"	7	17	I	Nara and Kyoto.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1251	1482	6	2	Bunmei.	14	5	7	I	Nara and Kyoto.
1252	"	9	8	"	"	7*	16	I	"
1253	"	12	18	"	"	10	29	I	Nara.
1254	1483	2	16	"	"	12	30	II	"
1255	1484	4	5	"	16	3	1	I	"
1256	"	9	18	"	"	8	20	I	"
1257	1486	1	26	"	17	12	12	I	"
1258	"	"	27	"	"	"	13	I	"
1259	"	6	6	"	18	4	25	II	Nara; slightly in Kyoto.
1260	"	10	17	"	"	9	11	I	Kyoto.
1261	"	"	27	"	"	"	21	I	Nara.
1262	1487	9	2	Chokyo.	1	8	6	I	Kyoto.
1263	1489	2	19	Yentoku.	"	1	10	I	"
1264	"	3	4	"	"	"	23	I	"
1265	"	"	5	"	"	"	24	I	"
1266	"	5	29	"	"	4	20	III	Aizu. (Iwashizō)
1267	"	8	27	"	"	7	22	II	Kyoto.
1268	"	"	30	"	"	"	25	II	"
1269	"	9	10	"	"	8	6	I	Nara.
1270	"	"	11	"	"	"	7	II	Kyoto.
1271	1491	3	21	"	3	2	2	I	Kyoto and Nara.
1272	"	9	25	"	"	8	13	I	Kyoto.
1273	1492	6	29	Mei-o.	1	5	26	II	"
1274	"	7	19	"	"	6	16	III	Aizu.
1275	1493	4	4	"	2	3	9	I	Kyoto.
1276	"	8	17	"	"	6	26	II	Aizu.
1277	"	12	10	"	"	10	23	I	Nara.
1278	"	"	17	"	"	"	30	II	Kyoto and Nara.
1279	"	"	19	"	"	11	2	I	Kyoto.

No	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1280	1493	12	20	Mei-o.	2	11	3	II	Nara; slightly felt in Kyoto.
1281	"	"	31	"	"	"	14	I	Nara.
1282	1494	1	1	"	"	"	15	I	Kyoto.
1283	"	"	20	"	"	12	4	I	"
1284	"	2	9	"	"	"	24	I	Nara.
1285	"	"	21	"	3	1	7	III	Aizu.
1286	"	6	19	"	"	5	7	III	Kyoto and Nara; after-shocks continued for 8 months.
1287	1495	2	11	"	4	1	7	I	Nara.
1288	"	"	17	"	"	"	13	II	Nara; slightly felt in Kyoto.
1289	"	6	30	"	"	5	29	I	Kyoto.
1290	"	9	12	"	"	8	15	I	"
1291	1496	4	2	"	5	2 <sup>*</sup>	10	I	"
1292	1497	7	22	"	6	5	13	I	Settsu.
1293	"	11	21	"	"	10	18	II	Kyoto.
1294	1498	2	1	"	7	1	1	I	Nara.
1295	"	"	5	"	"	"	5	I	"
1296	"	"	8	"	"	"	8	I	"
1297	"	3	26	"	"	2	25	I	Kyoto.
1298	"	7	9	"	"	6	11	III	Kyoto and several provinces; after-shocks continued for several days.
1299	"	9	20	"	"	8	25	III	Kyoto, Yamato, Ise, Mikawa, Totomi, Suruga, Izu, Sagami, Kai, Kii and Aizu; with sea-waves along the coasts of Kii, Ise, Mikawa, Totomi, Suruga, Izu and Sagami.
1300	"	12	9	"	"	10 <sup>*</sup>	17	II	Nara and Kyoto.
1301	"	"	25	"	"	11	4	I	Kyoto.
1302	"	"	28	"	"	"	7	I	"

*strongly felt in Kyoto*  
*strongly felt in Kyoto.*

*strongly felt in Kyoto.*

*Iga*  
*Owari*  
*Ise*  
*Mikawa*  
*Totomi*  
*Suruga*  
*Izu*  
*Sagami*

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1303	1499	1	19	Mei-o.	7	11	29	I	Kyoto.
1304	"	2	22	"	8	1	4	I	Kyoto and Nara.
1305	"	4	15	"	"	2	26	I	Kyoto.
1306	"	4	17	"	8	2	28	II	Nara; slightly felt in Kyoto.
1307	"	5	26	"	"	4	8	I	Kyoto, three shocks.
1308	"	6	2	"	"	"	15	I	Kyoto.
1309	"	7	21	"	"	6	4	I	Nara.
1310	"	8	25	"	"	7	10	II	Kyoto and Nara.
1311	"	"	31	"	"	"	16	I	Kyoto and Yamato.
1312	"	9	20	"	"	8	6	I	Kyoto.
1313	"	11	4	"	"	9	22	I	"
1314	1500	1	11	"	"	12	2	II	Kyoto; slightly felt at Nara.
1315	"	"	15	"	"	"	5	I	Kyoto.
1316	"	2	20	"	9	1	12	I	"
1317	"	4	3	"	"	2	26	II	Kyoto; slightly felt at Nara.
1318	"	5	29	"	"	4	23	I	Kyoto.
1319	"	7	10	"	"	6	4	III	Kai, followed by several minor shocks.
1320	"	"	31	"	"	"	25	I	Kyoto.
1321	"	10	4	"	"	9	1	I	"
1322	1501	12	26	Bunki.	1	11	6	I	"
1323	1502	1	28	"	"	12	10	III	Echigo.
1324	1503	5	15	"	3	4	10	I	Kyoto.
1325	"	9	27	"	"	8	27	I	"
1326	1504	"	23	Yeisho.	1	8	6	II	"
1327	1505	10	2	"	2	8	25	I	"
1328	1506	11	12	"	3	10	17	I	"
1329	"	12	15	"	"	11	21	II	"
1330	"	"	17	"	"	"	23	I	"
1331	1507	1	22	"	"	11	29	II	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1332	1507	3	31	Yeisho.	4	2	8	III	Higo, shakings continued for 32 days; strongly felt in Kyoto.
1333	"	5	28	"	"	4	7	I	Kyoto.
1334	1508	9	12	"	5	8	7	I	"
1335	1509	4	6	"	6	3	"	I	"
1336	"	5	7	"	"	4	9	I	"
1337	1510	9	21	"	7	8	8	III	Kyoto, Settsu and Kawachi; with sea-waves along the coast of Settsu.
1338	"	"	22	"	"	"	9	I	Kyoto.
1339	"	10	7	"	"	"	24	I	"
1340	"	"	10	"	"	"	27	III	Totomi, with sea-waves.
1341	1511	2	8	"	"	12	30	I	Kyoto.
1342	"	3	30	"	8	2	21	I	"
1343	"	5	24	"	"	4	17	I	"
1344	"	8	7	"	"	7	4	I	"
1345	"	9	9	"	"	8	7	III	Hitachi.
1346	"	12	2	"	"	11	2	I	Kyoto.
1347	1512	3	6	"	9	2	8	II	"
1348	"	7	31	"	"	6	9	III	Yamashiro.
1349	"	8	1	"	"	"	10	I	Kyoto.
1350	"	"	4	"	"	"	13	I	"
1351	"	"	20	"	"	"	29	I	"
1352	1514	1	13	"	10	12	8	II	"
1353	"	5	28	"	11	4	24	II	"
1354	"	9	23	"	"	8	25	I	"
1355	1516	4	13	"	13	3	2	II	"
1356	"	8	20	"	"	7	12	III	Kai, 9 shocks during two days.
1357	1517	6	18	"	14	5	19	II	Kyoto.
1358	"	7	18	"	"	6	20	III	Aizu. (in Yamashiro)

Strongly felt in Kyoto.  
 " " " a great  
 " " " earthquake  
 " " " in vicinity  
 " " " of Edo  
 " " " other  
 " " " provinces.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1359	1517	10	4	Yeisho.	14	9	9	II	Kyoto.
1360	1519	4	27	"	16	3	18	II	"
1361	1520	"	4	"	17	"	7	I	"
1362	"	12	1	"	"	10	11	II	"
1363	1521	10	21	Taiyei.	1	9	11	II	Nara.
1364	"	11	28	"	"	10	19	II	Kyoto and Nara.
1365	1524	"	2	"	4	9	26	I	Kyoto.
1366	1525	6	2	"	5	5	2	I	"
1367	"	9	20	"	"	8	23	III	Kamakura, Aizu. <i>Sanuki</i>
1368	1526	11	26	"	6	10	12	I	Kyoto.
1369	"	"	28	"	"	"	14	I	"
1370	1527	3	25	"	7	2	13	II	"
1371	1529	12	18	Kyoroku.	2	11	8	I	Settsu.
1372	1531	7	19	"	4	5*	25	I	Kyoto.
1373	1532	3	6	Tenmon.	1	1	20	III	Sanuki ; after-shocks continued for one week. <i>Satsuma</i>
1374	1533	2	19	"	2	1	16	I	Kyoto.
1375	"	3	27	"	"	2	22	I	"
1376	"	10	25	"	"	9	27	I	"
1377	1536	2		"	5	1		I	Kai.
1378	1538	1	16	"	6	12	6	I	Mikawa.
1379	1542	3	24	"	11	2	28	I	Kyoto, Omi.
1380	1544	5	23	"	13	4	22	III	Satsuma.
1381	1545			"	14	3		III	"
1382	1549	3	9	"	18	1	30	II	Kyoto.
1383	"	5	21	"	"	4	14	III	Kai ; after-shocks continued for 30 days.
1384	1550	8	14	"	19	6	22	I	Kyoto.
1385	1553	10	11	"	22	8	24	III	Kamakura.
1386	1554	12	11	"	23	11	7	I	Kyoto.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1387	1555	9	14	Ko-ji.	1	8	19	III	Aizu. ( <i>in Iwashiro</i> )
1388	1556	4	3	"	2	2	13	II	Kyoto.
1389	1557	7	26	"	3	6	20	II	"
1390	1558	6	25	<i>Yeiroku</i>	1	5	29	I	"
1391	1562	4	22	Yeiroku.	5	3	9	I	Kyoto.
1392	1563	2	28	"	6	1	26	III	Hitachi, Aizu. <i>Iwaki, Shimotsuke</i>
1393	"	9	22	"	"	8	25	I	Kyoto.
1394	"	12	27	"	"	12	2	III	Musashi, Hitachi, and Aizu. <i>Iwaki</i> <i>Shimotsuke</i>
1395	1564	4	27	"	7	3	7	II	Kyoto.
1396	"	5	23	"	"	4	3	I	"
1397	1565	8	24	"	8	7	19	I	"
1398	1566	2	23	"	9	1	23	I	"
1399	1567	12	19	"	10	11	9	I	"
1400	1568	6	13	"	11	5	8	I	"
1401	"	"	30	"	"	"	25	I	"
1402	"	10	7	"	"	9	7	I	"
1403	"	11	14	"	"	10	15	I	"
1404	"	"	27	"	"	"	28	I	"
1405	1569	11	11	"	12	9	23	I	"
1406	1570	3	27	Genki.	1	2	11	I	Kyoto, Omi.
1407	"	"	28	"	"	"	12	I	Omi.
1408	"	4	23	"	"	3	8	I	Kyoto.
1409	"	6	22	"	"	5	9	I	"
1410	1572	3	14	"	3	1 <sup>st</sup>	20	II	Nara.
1411	"	"	22	"	"	"	28	I	Kyoto.
1412	"	7	3	"	"	5	13	I	"
1413	"	"	20	"	"	6	1	II	Kyoto and Nara.
1414	1573	1	1	"	"	11	18	I	Kyoto.
1415	1575	7	22	Tensho.	3	6	5	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.			Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day	
1416	1578	12	8	Tensho.	6	10	29	III Mikawa.
1417	1579	"	19	"	7	11	21	II Nara.
1418	1582	9	16	"	10	8	20	II "
1419	"	"	19	"	"	"	23	I Kyoto.
1420	1583	2	10	"	11	1	18	II Nara.
1421	"	4	24	"	"	3	3	I Mikawa.
1422	"	"	25	"	"	"	4	I "
1423	"	8	13	"	"	6	23	I "
1424	1585	7	31	"	13	7	5	III Mikawa ; strongly felt in Yamato.
1425	1586	1	18	"	"	11	29	III Yamashiro, Yamato, Kawachi, Izumi, Settsu, Mikawa, Ise, Owari, Mino, Hida, Omi, Sanuki, and Hokuroku-do; after-shocks continued in Kyoto for 4½ months, at Nara for 5 months, and in Mikawa for 2½ months.
1426	1587	8	9	"	15	7	2	I Mikawa.
1427	"	"	26	"	"	"	19	I "
1428	1588	10	29	"	16	9	10	I Kyoto.
1429	1589	3	21	"	17	2	5	III Suruga and Totomi.
1430	"	4	17	"	"	3	3	I Nara.
1431	1590	10	30	"	18	10	2	I Yedo.
1432	"	11	13	"	"	"	16	I "
1433	"	12	18	"	"	11	22	I "
1434	1592	10	8	Bunroku.	1	9	3	II "
1435	1593	5	14	"	2	4	14	I Kyoto.
1436	"	10	19	"	"	9	25	I "
1437	1595	2	12	"	4	1	4	II "
1438	1596	9	1	Keicho.	1	7*	9	III Satsuma ; slightly felt in Kyoto.
1439	"	"	4	"	"	"	12	III Kyoto, Kinai provinces, Kii and Chikuzen; after-shocks continued for 6 months.

Several other provinces

*Handwritten notes:*  
 Nara  
 Amagasaki  
 Wakasa  
 Shigen  
 Hagi  
 Iga  
 Owari

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1440	1598	2	11	Keicho.	3	1	6	I	Kyoto.
1441	"	"	16	"	"	"	11	I	"
1442	"	"	19	"	"	"	14	I	"
1443	"	3	5	"	"	"	28	I	"
1444	"	"	10	"	"	2	3	I	"
1445	1599	11	20	"	"	10	3	I	"
1446	"	"	21	"	"	"	4	I	"
1447	"	"	22	"	"	"	5	I	"
1448	"	12	22	"	"	11	5	I	"
1449	1600	7	23	"	5	6	13	III	Tsugaru, the Iwaki-san erupted.
1450	1601	3	11	"	6	2	7	I	Kyoto.
1451	"	5	16	"	"	4	14	I	"
1452	1602	4	16	"	7	2	24	I	"
1453	"	5	6	"	"	3	15	I	"
1454	"	"	10	"	"	"	19	I	"
1455	"	"	17	"	"	"	26	I	"
1456	"	6	21	"	"	5	2	I	"
1457	"	"	22	"	"	"	3	I	"
1458	"	7	7	"	"	"	18	I	"
1459	"	"	30	"	"	6	12	I	"
1460	1603	4	26	"	8	3	15	I	"
1461	"	6	7	"	"	4	28	II	Yedo.
1462	"	7	7	"	"	5	28	I	Kyoto.
1463	"	12	29	"	"	11	27	I	"
1464	1604	1	22	"	"	12	21	II	"
1465	"	"	23	"	"	"	22	II	"
1466	"	"	24	"	"	"	23	I	"
1467	"	3	12	"	9	2	12	I	"
1468	"	6	3	"	"	5	6	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1469	1604	7	9	Keicho.	9	6	13	I	Kyoto.
1470	"	"	21	"	"	"	25	I	"
1471	"	"	22	"	"	"	26	I	"
1472	"	8	12	"	"	7	17	II	"
1473	"	"	17	"	"	"	22	I	"
1474	"	"	20	"	"	"	25	I	"
1475	"	"	28	"	"	8	4	I	"
1476	"	12	31	"	"	11	11	I	"
1477	1605	1	29	"	"	12	14	I	"
1478	"	"	31	"	"	"	16	III	Kanto, Hachijo-shima, Ise, Shikoku and Kiushu, with sea-waves along the coasts of Satsuma, Tosa, Ise, Totomi, Izu, Awa, Kazusa, Shimosa and Hachijo-shima.
1479	"	3	29	"	10	2	10	I	Suruga.
1480	"	8	26	"	"	7	12	I	Kyoto.
1481	1606	1	5	"	"	11	27	I	"
1482	"	7	5	"	11	6	1	I	Yedo.
1483	"	"	7	"	"	"	3	I	"
1484	1607	2	2	"	12	1	6	II	"
1485	"	"	16	"	"	"	20	II	"
1486	"	3	3	"	"	2	6	I	"
1487	"	5	23	"	"	4	28	I	Kyoto.
1488	"	8	5	"	"	6	13	I	Sanpu.
1489	1609	2	20	"	14	1	16	I	Tsugaru.
1490	"	6	9	"	"	5	8	I	Kyoto.
1491	"	10	16	"	"	9	19	I	"
1492	"	12	17	"	"	11	21	I	"
1493	1610	2	11	"	15	1	18	I	Tsugaru.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1494	1610	3	2	Keicho.	15	2	7	I	Kyoto.
1495	"	12	27	"	"	11	13	I	"
1496	1611	2	23	"	16	1	11	I	"
1497	"	4	5	"	16	2	22	I	Sunpu.
1498	"	9	27	"	"	8	21	III	Aizu. (Iwasaki)
1499	"	11	7	"	"	10	3	I	Sunpu.
1500	"	12	2	"	"	10	28	III	Sendai and the eastern coast of Ezo, accompanied by sea-waves. x Yeso
1501	1612	3	22	"	17	2	20	I	Sunpu.
1502	1613	1	3	"	"	11	13	I	Yedo.
1503	"	11	13	"	18	10	1	I	Kyoto.
1504	1614	2	1	"	"	12	23	I	"
1505	"	5	23	"	19	4	15	I	"
1506	"	"	30	"	"	"	22	I	"
1507	"	8	28	"	"	7	23	I	"
1508	"	9	28	"	"	8	25	I	Sunpu.
1509	"	10	9	"	"	9	6	I	"
1510	"	11	26	"	"	10	25	III	Kyoto, Odawara and Takata, with sea-waves along the coast of Echigo. ← in Sagami + in Echigo
1511	1615	2	27	Genwa.	1	1	30	I	Kyoto.
1512	"	6	26	"	"	6	1	III	Yedo.
1513	"	9	6	"	"	7	14	I	Kyoto.
1514	1616	3	5	"	2	1	18	I	"
1515	"	9	9	"	"	7	28	III	Sendai.
1516	"	10	26	"	"	9	16	I	Kyoto.
1517	"	11	18	"	"	10	10	I	"
1518	1617	3	7	"	3	1	30	I	"
1519	"	12	27	"	"	11	30	I	Shimotsuke.
1520	1618	6	19	"	4	4	27	I	Kyoto.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1521	1618	9	30	Genwa.	4	8	12	I	Kyoto.
1522	1620	2	6	"	6	1	3	I	"
1523	"	5	7	"	"	4	5	I	"
1524	"	8	12	"	"	7	14	I	"
1525	"	10	16	"	"	9	21	I	"
1526	1622	11	18	"	8	10	16	II	Kyoto.
1527	"	12	20	"	"	11	18	I	"
1528	1624	6	19	Kan-yei.	1	5	4	III	Shimotsuke.
1529	"	11	9	"	"	9	29	II	Kyoto.
1530	1625	8	7	"	2	7	5	I	"
1531	"	10	3	"	"	9	2	I	"
1532	"	"	4	"	"	"	3	I	"
1533	1627	3	8	"	4	1	21	II	Yedo.
1534	"	4	9	"	"	2	23	I	Yamashiro.
1535	"	7	13	"	"	6	1	I	Kyoto.
1536	1628	2	21	"	5	1	17	I	"
1537	"	6	2	"	"	5	1	I	"
1538	"	"	17	"	"	"	16	I	Yedo.
1539	"	"	19	"	"	"	18	II	"
1540	"	8	10	"	"	7	11	III	"
1541	1629	4	8	"	6	2 <sup>c</sup>	15	I	Kyoto.
1542	"	"	9	"	"	"	16	I	"
1543	"	8	16	"	"	6	27	I	"
1544	"	12	6	"	"	10	22	I	"
1545	1630	8	1	"	7	6	23	III	Yedo.
1546	1631	1	15	"	"	12	13	I	"
1547	"	"	27	"	"	"	25	II	"
1548	1632	2	21	"	9	1	2	I	"
1549	"	3	3	"	"	"	13	I	Kyoto.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1550	1632	3	27	Kan-yei.	9	2	7	I	Kyoto.
1551	"	8	2	"	"	6	17	I	Yedo.
1552	"	10	12	"	"	8	29	I	"
1553	"	"	15	"	"	9	2	I	"
1554	"	11	13	"	"	10	2	I	"
1555	"	12	8	"	"	10	27	I	"
1556	1633	2	8	"	"	12	30	I	"
1557	"	"	16	"	10	1	8	I	"
1558	"	3	1	"	"	"	21	III	Odawara and Kanto, with sea-waves at Atami; strongly felt in Yedo. After- shocks continued for about one month.
1559	"	5	17	"	"	4	10	I	Yedo.
1560	"	11	16	"	"	10	15	I	"
1561	1634	5	6	"	11	4	9	I	Kyoto.
1562	1635	3	12	"	12	1	23	III	Yedo.
1563	"	7	31	"	"	6	18	I	"
1564	"	10	6	"	"	8	25	I	"
1565	"	11	9	"	"	9	30	I	"
1566	1636	1	5	"	"	11	27	I	Kyoto.
1567	"	2	21	"	13	1	15	I	Yedo.
1568	"	"	22	"	"	1	16	I	"
1569	"	"	23	"	"	1	17	I	"
1570	"	9	4	"	"	8	5	I	"
1571	"	10	28	"	"	9	31	I	"
1572	"	"	29	"	"	10	1	I	"
1573	"	"	31	"	"	"	3	I	"
1574	"	11	14	"	"	"	17	I	"
1575	1637	8	29	"	14	7	10	I	"
1576	"	9	21	"	"	8	3	I	"

1561

Mutsumaye (in Ishima)

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1577	1637	9	28	Kan-yei.	14	8	10	I	Yedo.
1578	"	"	29	"	"	"	11	I	"
1579	"	10	17	"	"	"	29	I	"
1580	1639	11	—	"	16	11		III	Echizen.
1581	1643	6	15	"	20	4	29	I	Yedo.
1582	1643	12	6	"	20	10	26	I	"
1583	1644	2	13	Shoho.	1	1	6	I	Kyoto.
1584	"	"	26	"	1	"	19	I	"
1585	"	3 $\frac{1}{4}$	12	"	"	3	6	I	" Nikko. Shimotsuke
1586	"	"		"	"			III	Nikko.
1587	"	8	5	"	"	7	3	I	Kyoto.
1588	"	10	18	"	"	9	18	III	Honjo (in Ugo).
1589	1645	2	15	"	2	1	19	II	Yedo.
1590	1646	6	9	"	3	4	26	III	Sendai, Mutsu and Dewa; on the same day, two small shocks felt in Yedo.
1591	"	12	21	"	"	11	15	II	Kyoto.
1592	1647	6	16	"	4	5	14	III	Yedo and Sagami.
1593	"	9	3	"	"	8	5	I	Yedo.
1594	"	"	25	"	"	"	27	I	"
1595	1648	6	12	Keian.	1	4	22	III	Sagami; felt strongly in Yedo, and slightly in Kyoto.
1596	1649	3	14	"	2	2	2	I	Kyoto.
1597	"	3	16	"	"	"	5	I	Yedo. Aki & Iyo - slight felt in Kyoto.
1598	"	"	17	"	"	"	5	III	Aki and Iyo.
1599	"	5	11	"	"	3	30	I	Yedo.
1600	"	6	30	"	"	5	21	I	"
1601	"	7	30	"	"	6	21	III	Yedo and Nikko. in Shimotsuke
1602	"	9	1	"	"	7	25	III	Yedo.
1603	"	"	3	"	"	"	27	I	"

1584'

1596'

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1604	1649	9	10	Keian.	2	8	4	I	Yedo.
1605	"	"	11	"	"	"	5	I	"
1606	"	"	26	"	"	"	20	I	"
1607	1650	4	24	"	3	3	24	I	"
1608	1652	12	1	Sho-o.	1	11	1	I	"
1609	1659	4	21	Manji.	2	2	30	III	Mutsu and Shimotsuke; strongly felt in Yedo.
1610	1661	8	4	Kanbun.	1	7	10	III	Higo.
1611	"	12	10	"	"	10	19	III	Tosa.
1612	1662	2	5	"	2	1	18	I	Kyoto.
1613	"	5	12	"	"	3	24	III	Kyoto, Yamashiro, Kawachi and Settsu; strongly felt in Yedo.
1614	"	6	16	"	"	5	1	III	Kyoto, Yamashiro, Yamato, Izumi, Settsu, Iga, Ise, Shinano, Omi, Mino, Tamba, Tango, Wakasa and Hizen; after-shocks continued for more than 6 months.
1615	"	10	30	"	"	9	19	III	Hinga and Osumi, accompanied by sea-waves.
1616	1663	8	17	"	3	7	15	III	Oshima and Iburi, the Usu-san erupted.
1617	"	12	6	"	"	11	7	I	Yedo.
1618	"	"	27	"	"	"	23	I	Hizen, the Unsendake erupted.
1619	1664	1	4	"	"	12	6	III	Kyoto and Yamashiro.
1620	"	5	20	"	4	4	25	I	Yedo.
1621	"	8	3	"	"	6	12	III	Kii; slightly felt in Kyoto.
1622	1665	2	16	"	5	1	2	I	Kyoto.
1623	"	4	16	"	"	3	1	I	"
1624	"	5	24	"	"	4	10	I	Higo.
1625	"	6	12	"	"	"	29	II	Yedo.

1618

No.	EUROPEAN DATE.			JAPANESE DATE.			Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day	
1626	1665	6	19	Kanbun.	5	5	6	I Kyoto.
1627	"	"	25	"	"	"	12	III "
1628	"	9	14	"	"	8	6	I "
1629	"	10	11	"	"	9	3	I Yedo.
1630	1666	2	1	"	"	12	27	III Takata (Echigo).
1631	"	5	31	"	6	4	28	I Yedo.
1632	"	8	30	"	"	8	1	I Tajima.
1633	1668	2	24	"	8	1	13	I Yedo.
1634	"	3	5	"	"	"	23	I "
1635	"	8	28	"	"	7	21	III Sendai. (Rikuzen)
1636	1669	9	6	"	9	8	11	II Yedo.
1637	1670	6	22	"	10	5	5	I Sado.
1638	"	7	21	"	"	6	5	III Osumi-gun (Sagami).
1639	"	12	20	"	"	11	8	I Yedo.
1640	1671	1	11	"	11	12	12	I Yedo ; ashes fell.
1641	1672	1	11	"	12	1	13	I Yedo.
1642	"	"	20	"	"	"	22	I "
1643	"	2	29	"	"	2	1	I "
1644	1673	7	28	Yenpo.	1	6	15	I Kyoto.
1645	1674	8	9	"	2	7	8	I Yedo.
1646	1676	1	16	"	3	12	2	I Sado.
1647	"	7	12	"	4	6	2	III Tsuwano (Iwami.)
1648	1677	4	13	"	5	3	12	III Tsugaru and Nanbu, accompanied by sea-waves.
1649	<del>1678</del> 1768	10	2	"	6	8	17	II Yedo.
1650	1681	9	13	Tenwa.	1	8	2	I "
1651	1682	2	9	"	2	1	2	I Kyoto.
1652	"	11	9	"	"	10	10	I "
1653	1683	5	1	"	3	4	5	I Nikko.

1638'

Tsushima

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1654	1683	6	11	Tenwa.	3	5	17	II	Nikko.
1655	"	"	18	"	"	"	24	III	Nikko; strongly felt in Yedo.
1656	"	10	20	"	"	9	1	III	Nikko.
1657	1684	3	31	Teikyo.	1	2	16	I	O-shima erupted (Izu).
1658	"	4	8	"	"	"	24	I	Kyoto.
1659	"	6	29	"	"	5	17	I	"
1660	1684	8	12	"	1	7	2	I	Kyoto.
1661	"	9	27	"	"	8	18	I	"
1662	"	11	21	"	"	10	15	I	"
1663	1685	10	8	"	2	9	11	III	Suwo and Nagato; slightly felt in Kyoto.
1664	"	11	22	"	"	10	26	I	Yedo.
1665	1686	1	15	"	"	12	21	I	"
1666	"	7	14	"	3	5	24	I	"
1667	"	10	3	"	"	8	16	III	Totomi and Mikawa; slightly felt in Kyoto.
1668	"	"	21	"	"	9	5	I	Kyoto.
1669	"	11	7	"	"	"	22	I	"
1670	1687	10	30	"	4	9	25	I	Yedo.
1671	1688	3	21	Gen-roku.	1	2	20	I	Kyoto.
1672	"	6	24	"	"	5	27	I	"
1673	"	11	24	"	"	11	2	I	"
1674	"	"	29	"	"	"	7	I	"
1675	"	12	5	"	"	"	13	I	"
1676	1689	5	17	"	2	3	28	I	"
1677	"	7	26	"	"	6	10	I	"
1678	1690	2	15	"	3	1	7	I	"
1679	1691	5		"	4	5		I	Higo, the Aso-san erupted.
1680	1692	5	1	"	5	4	16	I	Kyoto.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1681	1693	2	25	Gen-roku.	6	1	21	I	Kyoto.
1682	1694	6	19	"	7	5	27	III	Akita (in Ugo) and Shonai and Noshiro (in Uzen).
1683	1696	5			8	4		III	Higo.
1684	1696	7	17		9	6	19	I	Yedo.
1685	"	"	19	"	"	"	21	I	"
1686	1697	11	23	"	10	10	7	I	Yedo.
1687	"	"	25	"	"	"	12	III	Kamakura; strongly felt in Yedo.
1688	1698	2	14	"	11	1	4	I	Kyoto.
1689	1699	9	23	"	12	9	1	III	Kii.
1690	1700	4	16	"	13	2	22	III	Musashi, Sagami, Kai, Suruga, Izu, Awa, Kazusa, Shimosa and Mutsu, with sea-waves along the coasts of Awa, Sagami and Izu; after-shocks continued for about 6 months.
1691	1706	10	21	Ho-yei.	3	9	15	II	Yedo.
1692	"	12	9	"	"	11	5	I	Sado.
1693	1707	10	28	"	4	10	4	III	Bungo, Iyo, Tosa, Awa, (in Shikoku), Sanuki, Yamashiro, Yamato, Kawachi, Settsu, Omi, Ise, Owari, Mikawa, Totomi, Suruga, Kai, Izu, and other provinces in Sanindo, Sanyodo and Saikaido accompanied by sea waves along the coasts of Miuga, Bungo, Nagato, Iyo, Tosa, Awa, (in Shikoku), Settsu, Totomi, Ise and Izu.
1694	"	12	16	"	"	11	23	III	Suruga, Kai, and Sagami (the Fuji-san erupted); the shock felt slightly in Yedo.
1695	1708	2	15	"	5	1	24	I	Yedo.
1696	"	"	16	"	"	"	25	I	"
1697	"	"	17	"	"	"	26	I	"

in Uzen

in Izo

Sagami

Tsushima

Miyako-shima  
Izu-Kiu

+

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1698	1708	2	18	Ho-yei.	5	1	27	I	Yedo.
1699	"	5	21	"	"	4	2	I	Kyoto.
1700	1709	3	19	"	8	2	1	III	Mimasaka, Inaba and Hoki; slightly felt in Kyoto.
1701	1714	4	28	Shotoku.	4	3	15	III	Shinano.
1702	1717	2	13	Kyoho.	2	1	3	III?	Huiga, the Kirishima-san erupted.
1703	1717	2	18	"	2	1	8	I	Yedo.
1704	"	6	6	"	"	4	27	I	Kyoto.
1705	"	7	9	"	"	6	1	I	"
1706	"	9	20	"	"	8	16	I	"
1707	1718	1	12	"	"	12	11	I	Yedo.
1708	"	3	11	"	3	2	10	I	"
1709	"	6	28	"	"	6	1	I	Kyoto.
1710	"	8	22	"	"	7	26	III	Yamashiro, Shinano, Totoui and Mikawa; strongly felt in Kyoto.
1711	"	12	13	"	"	10 <sup>o</sup>	22	I	Kyoto.
1712	1719	5	7	"	4	3	18	I	Echigo.
1713	1720	2	15	"	5	1	8	I	Kyoto.
1714	"	4	3	"	"	2	26	I	"
1715	"	7	9	"	"	6	4	I	"
1716	1722	4	2	"	7	2	17	I	"
1717	"			"	"	12		I	Shinano, the Asama-san erupted.
1718	1723	3	9	"	8	2	3	I	Kyoto.
1719	"	12	17	"	"	11	20	III	Saikaido; after-shocks continued till the next month.
1720	1724	1	5	"	"	12	10	I	Kyoto.
1721	"	6	21	"	9	5	1	I	"
1722	"	7	13	"	"	"	23	I	"
1723	"	8	8	"	"	6	20	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1724	1725	4	18	Kyoho.	10	3	6	I	Kyoto.
1725	"	10	30	"	"	9	25	III	<i>Nagasaki</i>
1726	1726	4	20	"	11	3	19	I	Nagasaki.
1727	"	9	11	"	"	8	16	I	Echizen.
1728	1727	1	24	"	12	1	3	I	Kyoto.
1729	"	2	13	"	"	"	23	I	"
1730	1727	10	27	"	12	9	13	I	"
1731	1728	11	8	"	13	10	7	I	"
1732	1729	8	1	"	14	7	7	III	Noto and Sado.
1733	<sup>1730</sup> 1731	<sup>3</sup> 9	<sup>12</sup> 20	"	<sup>15</sup> 16	<sup>8</sup> 20	<sup>24</sup> 20	III	Kyoto. <i>Tsushima</i>
1734	"	10	7	"	"	9	7	III	Kori (in Mutsu).
1735	"	11	13	"	"	10	14	I	Kyoto. <i>=Mo-Ozi</i>
1736	"	12	19	"	"	11	21	I	"
1737	"	"	30	"	"	12	2	I	"
1738	1732	1	29	"	17	1	3	II	Yedo.
1739	1733	5	27	"	18	4	16	I	Kyoto.
1740	1734	11	20	"	19	10	27	I	Yedo.
1741	"	12	1	"	"	11	7	I	Kyoto.
1742	1735	5	6	"	20	3	14	I	Yedo.
1743	1737	4	30	Genbun.	2	4	1	I	"
1744	"	7	28	"	"	7	1	I	"
1745	"	10	26	"	"	10	3	I	Kyoto.
1746	"	11	29	"	"	11	8	I	Yedo.
1747	1740	2	27	"	5	2	1	I	"
1748	"	5	20	"	"	4	25	I	Kyoto.
1749	"	7	20	"	"	6	27	I	"
1750	"	10	21	"	"	9	1	I	Yedo.
1751	1741	10	12	Kanpo.	1	9	3	I	"
1752	1743	7	1	"	3	5	10	I	Kyoto.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1753	1744	1	8	Kanpo.	3	11	24	I	Kyoto.
1754	"	"	9	"	"	"	25	I	"
1755	1745	3	2	"	2	1	30	I	"
1756	"	6	21	Yenkyo.	2	5	22	I	"
1757	1746	3	30	"	3	2	9	I	"
1758	"	4	7	"	"	"	17	I	"
1759	1746	5	14	"	3	3	24	II	Yedo.
1760	"	12	11	"	"	10	29	I	Kyoto.
1761	1747	3	13	"	4	2	3	I	"
1762	"	6	1	"	"	4	24	I	"
1763	1748	1	27	"	"	12	27	I	"
1764	1749	11	26	Kan-yen.	2	10	17	I	"
1765	"			"	"	Winter.		I	Osaka, several shocks.
1766	1750	2	27	"	3	1	21	I	Kyoto.
1767	"	8	31	"	"	7	30	I	"
1768	"	9	1	"	"	8	1	I	"
1769	"	11	28	"	"	10	30	I	"
1770	"	12	8	"	"	11	10	I	"
1771	1751	3	26	Horeki.	1	2	29	II	"
1772	"	"	27	"	"	3	1	I	"
1773	"	"	28	"	"	"	2	I	"
1774	"	"	29	"	"	"	3	I	"
1775	"	"	30	"	"	"	4	I	"
1776	"	4	11	"	"	"	16	I	"
1777	"	"	14	"	"	"	19	I	"
1778	"	5	20	"	"	4	25	III	Takata (in Echigo); after-shocks continued for several months.
1779	"	7	17	"	"	6	25	I	Kyoto.
1780	1753	2	11	"	3	1	9	II	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1781	1753	3	20	Horeki.	3	2	16	I	Yedo.
1782	1755	4	21	"	5	3	10	II	Nikko (in Shimo-
1783	1758	3	28	"	8	2	19	I	tsuke). Kyoto.
1784	"	"	29	"	"	"	20	I	"
1785	1760	5	14	"	10	3	29	I	"
1786	"	"	19	"	"	4	5	I	"
1787	1762	5	11	"	12	4	18	I	"
1788	"	10	31	"	"	9	15	III	Sado.
1789	1763	3	16	"	13	2	2	I	Kyoto.
1790	"	4	5	"	"	"	22	I	"
1791	1765	9	22	Meiwa.	2	8	8	I	Sado.
1792	1766	3	8	"	3	1	28	III	Mutsu of Chishima Tsugaru and Aomori.
1793	1768	10	15	"	5	9	5	I	Sado.
1794	1769	8	29	"	6	7	28	III	Sadowara (in Hiuga).
1795	1770	9	19	"	7	8	1	I	Sado.
1796	1771	6	14	"	8	5	2	I	Yedo.
1797	"	7	13	"	"	6	2	I	"
1798	"	11	24	"	"	10	18	I	Sado.
1799	1772	6	3	An-yei.	1	5	3	I	Kyoto.
1800	1773	9	26	"	2	8	10	I	Sado.
1801	1774	1	10	"	"	11	28	I	Yedo.
1802	"	"	23	"	"	12	11	I	Kyoto.
1803	"	2	9	"	"	"	28	I	Yedo.
1804	"	"	11	"	"	"	30	I	"
1805	"	3	14	"	3	2	3	I	Kyoto.
1806	"	4	14	"	"	3	4	I	"
1807	"	5	3	"	"	"	23	I	"
1808	"	6	25	"	"	5	17	I	"
1809	1775	2	15	"	4	1	16	I	"

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1810	1776	10	22	An-yei.	5	9	10	I	Kyoto.
1811	"	12	3	"	"	10	23	I	"
1812	1777	3	20	"	6	2	11	I	"
1813	1778	2	21	"	7	"	12	I	"
1814	1778	3	14	"	7	2	18	I	Sadowara. (Aki, Bizen, Bingo - Hinga)
1815	"	"	22	"	"	"	24	I	Kyoto.
1816	"	4	1	"	"	3	4	I	Sado.
1817	"	6	28	"	"	6	4	I	Kyoto.
1818	1779	3	4	"	8	1	17	I	Sado.
1819	"	5	25	"	"	4	10	I	Kyoto.
1820	"	11	8	"	"	10	1	II	Satsuma and Osumi, the Sakura-shima erupted.
1821	"	12	6	"	"	"	29	I	Kyoto.
1822	"	"	17	"	"	11	10	II	Sado.
1823	1780	4	16	"	9	3	12	II	Yedo.
1824	1780	5	24	"	9	4	24	I	Sado. (Chishima)
1825	"	10	24	"	"	9	27	I	Kyoto.
1826	1781	3	7	Temmei.	1	2	13	I	Sado.
1827	1782	8	23	"	2	7	15	III	Yedo and Sagami.
1828	1783	3	4	"	3	2	2	II	Yedo.
1829	"	8	5	"	"	7	8	II	Shinano; the Asama-yama erupted.
1830	1786	3	22	"	6	2	23	I	Sagami.
1831	1789	4	10	Kansei.	1	3	15	I	Sado.
1832	1790	2	25	"	2	1	12	I	Kyoto.
1833	"	3	16	"	"	2	1	I	"
1834	"	"	24	"	"	"	9	I	"
1835	"	11	7	"	"	10	1	I	"
1836	1791	1	1	"	"	11	27	II	Yedo.
1837	"	1		"	"	12		I	Yedo, several shocks.

1813'

X

X

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1838	1791	9	13	Kansei.	3	8	16	I	Kyoto.
1839	1792	4	21	"	4	3	1	III	Shimabara (in Hizen); the Fuku-san erupted. After- shocks continued for 9 months.
	<i>The Unzen - Fuku-san eruption</i>								
1840	1793	2		"	5	1		I	Kanto Provinces.
1841	"	6	11	"	"	5	3	I	Kyoto.
1842	"	"	13	"	"	"	5	I	"
1843	"	"	14	"	"	"	6	I	"
1844	1794	11	25	"	6	11	3	II	Yedo.
1845	1797	9	2	"	9	7 <sup>o</sup>	12	I	Kyoto.
1846	1798	"	12	"	"	"	22	I	"
1847	1799	4	9	"	10	7	25	I	"
1848	1802	11	18	Kyowa.	2	10	23	I	"
1849	"	"	24	"	"	"	29	I	"
1850	"	12	9	"	"	11	15	III	Sado, accompanied by sea-waves; after- shocks continued for 8 months.
1851	1803	4	25	"	3	3	4	II	Yedo.
1852	1804	7	13	Bunka.	1	6	7	III	Shonai (in Dewa).
1853	1806	3	22	"	3	2	3	I	Yedo. <i>in Usen</i>
1854	"	4	13	"	"	"	25	I	"
1855	"	6	8	"	"	4	22	I	"
1856	"	8	27	"	"	7	14	I	"
1857	"	12	1	"	3	10	22	I	"
1858	1807	3	29	"	4	2	21	I	"
1859	1810	2	4	"	7	1	1	III	Sado. <i>Yedo</i>
1860	1812	3	17	"	9	2	5	I	Kyoto.
1861	"	12	7	"	"	11	4	III	<del>Yedo</del> and neighbouring provinces.
1862	1814	3	26	"	11	2	5	I	Kyoto.
1863	1815	3	2	"	12	1	22	III	Kaga.

CATALOGUE OF JAPANESE EARTHQUAKES.

387

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1864	1819	8	2	Bunsei.	2	6	12	III	Ise, Mino, Settsu and Yamashiro.
1865	1821	12	13	"	4	11	19	III	Onuma-gun, Aizu (Iwashiro).
1866	1822	3	12	"	5	1 <sup>o</sup>	19	II	Yezo, the Usu-dake erupted; shaking continued for one month.
1867	1824	2	13	"	7	1	14	I	Kyoto.
1868	1826			"	9	Spring.		I	Yedo, several shocks.
1869	"			"	"	Winter.		I	"
1870	1828	12	18	"	11	11	12	III	Echigo.
1871	1830	8	19	Tenpo.	1	7	2	III	Yamashiro, Wakasa, Tanba and Omi; after-shocks continued for 6 months.
1872	1831	11	13	"	2	10	10	III	Hiizen.
1873	1833	12	7	"	4	10	26	III	Sado, accompanied by sea-waves.
1874	1834	2	9	"	5	1	1	III	Ishikari.
1875	"	5	16	"	"	4	8	II	Suruga and Kai, the Fuji-san erupted.
1876	1835	7	20	"	6	6	25	I	Yedo.
1877	"	8	19	"	"	7	25	III	Mutsu and Nemuro, accompanied by great sea-waves.
1878	1838	1	4	"	8	12	9	I	Yedo.
1879	1841	5		"	12	4		III	Suruga.
1880	1843	3	9	"	14	2	9	I	Yedo.
1881	"	4	25	"	"	3	26	III	Kushiro, accompanied by sea-waves.
1882	1844	5	8	Koka.	4	3	24	III	Shinano and Echigo.
1883	1853	3	11	Ka-yei.	6	2	2	III	Sagami, Suruga, Izu, Mikawa and To-tomi.
1884	1854	7	9	Ansei.	1	6	15	III	Yamashiro, Yamato, Kawachi, Izumi, Settsu, Omi, Tanba, Kii, Echizen, Iga and Ise.

19<sup>a</sup>  
111100  
Omi  
Yamato  
Harachi

X

Sanjo, Mizuke, sp  
No 22

X

Rikyu  
Rikyu

of Nemuro

Odawara

Echigo  
Harina  
Muro  
Ivase  
Mikawa

338 S. SEKIYA CATALOGUE OF JAPANESE EARTHQUAKES.

No.	EUROPEAN DATE.			JAPANESE DATE.				Intensity.	DISTRICT.
	Year	Month	Day	Period	Year	Month	Day		
1885	1854	12	23	Ansei.	1	11	4	III	Hinga, Hizen, Higo, Chikuzen, Satsuma, Osumi, Chikugo, Buzen, Bungo, Nagato, Suwo, Aki, Bingo, Bitchu, Bizen, Harima, Iyo, Tosa, Awa (in Shikoku), Sanuki, Awaji, Kii, Yamashiro, Yamato, Kawachi, Settsu, Tango, Iwami, Izumo, Wakasa, Echizen, Totomi, Suruga, Kai, Izu, Sagami, Musashi, Omi, Mino, Shinano, and Shimonotsuke; accompanied by sea-waves along the coasts of Bungo, Tosa, Awa (in Shikoku), Settsu, Ise, Shima, Totomi and Izu. After shocks continued for several years.
1886	1855	11	11	"	2	10	2	III	Yedo. <i>Musashi, Sagami, Shimosa</i>
1887	1856	8	23	"	3	7	23	III	Iburi and Oshima; accompanied by sea-waves. <i>Hakofate (Oshima), Yufutze (Iburi)</i>
1888	"	11	4	"	"	10	7	II	Yedo.
1889	1857	7	14	"	4	5 <sup>2</sup>	23	III	Suruga; strongly felt in Yedo.
1890	"	10	15	"	"	8	28	III	Iyo.
1891	1858	4	8	"	5	2	25	I	Kyoto.
1892	"	"	9	"	"	"	26	III	Yechizen and Etchu; weakly felt in Kyoto.
1893	"	"	23	"	"	3	10	III	Shinano.
1894	1858	12	23	"	"	11	19	I	Kyoto.
1895	1859	5	28	"	6	4	26	I	"
1896	1861	2	26	Bunkyo.	1	2	16	I	Yedo.
1897	"	9	29	"	"	8	25	I	"
1898	1864	6	6	Ganji.	1	5	3	I	"

*Vain sent  
1861*





**NOTES**  
ON THE  
EARTHQUAKE INVESTIGATION COMMITTEE  
CATALOGUE OF JAPANESE  
EARTHQUAKES.

By

**F. Omori, D. Sc.**

Reprinted from the Journal of the College of Sciences, Imperial University, Tōkyō, Japan.  
Vol. XI, Pt. 4.

---

Tōkyō, 1899.



# Notes on the Earthquake Investigation Committee Catalogue of Japanese Earthquakes.

By

F. Omori, D.Sc.

---

## I. INTRODUCTION.

1. The *Earthquake Investigation Committee Catalogue of Japanese Earthquakes*<sup>1</sup> includes the records of 1898 earthquakes, which took place in Japan<sup>2</sup> during the 1451 years between the 5th year of Inkio Tenno (416 A.D.) and the 3rd year of Kei-o (1867 A. D.), each great earthquake and its after-shocks being counted in it as one. As the development of seismic literature depends much on the state of civilization of the times, the majority of old earthquake records relate naturally to Kyoto, which was the capital between 797 and 1867, A.D. Many earthquakes were also recorded in Kamakura and then in Yedo (Tokyo), when these places were the seat of the *Shogunate*, or military regency.

2. The number of earthquakes described in original histories and manuscripts as *great earthquakes* or *great shakings of the ground* amounts to 449. All of these earthquakes, however, were not destructive, some being nothing more than shocks, in which

---

1) Compiled under the superintendence of the late Prof. Sekiya. This volume, pp. 315-388.

2) Liu-kiu Islands and Formosa excluded.

the ground moved more or less sharply without producing any damage. For the sake of making the Catalogue more definite I have classified the earthquakes contained in it into the following three kinds, according to the intensity of their motion :

*Great or destructive earthquakes*, in which the ground was cracked, buildings greatly damaged, lives lost, etc.;

*Strong earthquakes*, in which the motion was sufficiently sharp to cause people to run out of doors and to produce slight damage, such as the overthrowing of furnitures, small cracks in walls and *ishigaki* (masonry walls), embankments, etc.;

*Small or slight earthquakes*, in which the motion was weak and which caused neither alarm nor damage.

It may here be remarked that the relation between the absolute intensity of the earthquake motion and the amount of damage produced would not necessarily be the same in different countries. Thus, the houses in Japan are mostly constructed of wood and resist earthquake shocks much better than buildings in European cities which are often high and constructed of stone or brick, generally without any precautions being taken against earthquakes. An earthquake classed as *strong* in the Catalogue, might therefore have produced considerable damage, had it affected an European city.

## II. Number of Destructive Earthquakes in Japan.

3. It is no easy matter to classify earthquakes accurately according to the scale in § 2, since some of the old earthquake records are too simple and make no reference to the intensity of motion or to the area of disturbance. In recognising which

were destructive among the earthquakes in Japan recorded in the original histories and journals, I have been guided by the following considerations :

- (a) A shock whose destructive characters are clearly described, may be considered as a *destructive earthquake* ;
- (b) A shock in Kyoto, Kamakura or Yedo (Tokyo), which is recorded simply as a *great earthquake*, but whose destructive effects are not specially mentioned, was presumably a *strong earthquake* ;
- (c) A shock recorded, as a *great earthquake*, whose area of disturbance was very extensive or whose after-shocks were numerous, may be presumed as a *destructive earthquake* even when there exists no special description of the destructive effects ;
- (d) A shock in a remote province, which is recorded as a *great earthquake*, may generally have been a *destructive earthquake*, even when there exists no special description of the destructive effects.

4. The total number of destructive earthquakes in Japan estimated on these principles and counting to the end of the year 1898, is two hundred and twenty-two, whose dates and districts are given in Table I. I will note here that the date of destructive shocks in Liu-kiu Islands and the provinces of Tsushima and Kaga, whose original records are not yet in the hands of the Earthquake Investigation Committee, have provisionally been taken from the late Mr. H. Okajima's "Nippon Saiishi" or *A History of Unusual Events in Japan*. Again a few records relating to Hokkaido have been taken from "Hokkaido-shi" or *History and Geography of Hokkaido*.

---

1) Formosa excepted.

No.	EUROPEAN DATE.			JAPANESE DATE.				DISTRICT.
	Year	Month	Day	Period	Year	Month	Day	
49	1241	5	22	Ninji.	2	4	3	Kamakura.
50	1245	8	26	Kangen.	3	7	26	Kyoto.
51	1250	8	24	Kencho.	2	7	18	Kamakura.
52	1257			Shoka.	1	Spring.		Tsushima.
53	"	10	9	"	"	8	23	Kamakura.
54	1273	4	5	Bunyei.	10	3	9	Aizu (in Iwashiro).
55	1293	5	27	Yeinin.	1	4	13	Kamakura and Kanto provinces.
56	1325	12	5	Seichu.	2	10	21	Kinai provinces; strongly felt in Kyoto.
57	1331	8	15	Genko.	1	7	3	Kii and several other provinces.
58	"	"	19	"	"	7	7	Suruga. <i>The Fuji-san erupted</i>
59	1350	7	6	Shohei.	5	5	23	Kyoto.
60	1361	8	1	"	16	6	22	Kii, Yamato, Kawachi, Izumi and Settsu; strongly felt in Kyoto.
61	"	"	3	"	"	"	24	Yamato, Kawachi, Settsu, Izumi, Awaji, Kii and Awa (in Shikoku).
62	1375	5	23	Tenju.	1	4	14	Aizu (in Iwashiro).
63	1388	2	5	Genchu.	4	12	19	"
64	1400	11	19	O-yei.	7	10	24	Kyoto, Ise and Iga.
65	1407	2	21	"	14	1	5	Aizu (in Iwashiro) and several provinces; strongly felt in Kyoto.
66	1408	1	27	"	"	12	14	Settsu; slightly felt in Kyoto.
67	"	11	26	"	15	10	29	Kyoto.
68	1420	9	26	"	27	8	10	Kamakura (in Sagami).
69	1425	11	23	"	32	11	5	Kyoto.
70	1433	2	23	Yeikyo.	5	1	24	Ise and Omi; strongly felt in Kyoto.
71	"	11	7	"	"	9	16	Shimosa, Sagami, Kai and Aizu (in Iwashiro); strongly felt in Kyoto.
72	1436	8	30	"	8	7	9	Aizu (in Iwashiro).
73	1440	10	22	"	12	9	18	Aizu; strongly felt in Kyoto.

No.	EUROPEAN DATE.			JAPANESE DATE.				DISTRICT.
	Year	Month	Day	Period	Year	Month	Day	
74	1442	12	1	Kakitsu.	2	10	20	Kozuke.
75	1445	1	9	Bun-an.	1	11	22	Kyoto.
76	1448			"	5			Several provinces.
77	1449	5	13	Hotoku.	1	4	12	Kyoto, Yamashiro and Yamato.
78	1454	12	21	Kyotoku.	3	11	23	Kozuke.
79	1466	5	29	Bunsho.	1	4	6	Yamashiro and Yamato.
80	1474			Bunmei.	6	Winter.		(District not known).
81	1475	5	29	"	7	4	16	Aizu (in Iwashiro).
82	1479	9	27	"	11	9	3	"
83	1489	5	29	Yentoku.	1	4	20	"
84	1492	7	19	Mei-o.	1	6	16	"
85	1494	2	21	"	3	1	7	"
86	"	6	19	"	"	5	7	Nara; strongly felt in Kyoto.
87	1498	7	9	"	7	6	11	Several provinces; strongly felt in Kyoto.
88	"	9	20		7	8	25	Kii, Yamato, Iga, Ise, Owari, Mikawa, Totomi, Suruga, Kai, Izu, Sagami, Musashi, Awa, Kazusa, Shimosa, Shimotsuke, Hitachi and Iwashiro; strongly felt in Kyoto.
89	1500	7	10	"	9	6	4	Kai.
90	1502	1	28	Bunki.	1	12	10	Echigo.
91	1507	3	31	Yeisho.	4	2	8	Higo; strongly felt in Kyoto.
92	1510	9	21	"	7	8	8	Settsu and Kawachi; strongly felt in Kyoto.
93	"	10	10	"	"	8	27	Totomi.
94	1511	9	9	"	8	8	7	Hitachi.
95	1512	3	6	"	9	2	8	Strongly felt in Kyoto, probably a great earthquake in the vicinity.
96	"	7	31	"	"	6	9	Yamashiro and probably also other provinces.
97	1516	8	20	"	13	7	12	Kai.

No.	EUROPEAN DATE.			JAPANESE DATE.				DISTRICT.
	Year	Month	Day	Period	Year	Month	Day	
98	1517	7	18	Yeisho.	14	6	20	Aizu (in Iwashiro).
99	1525	9	20	Taiyei.	5	8	23	Kamakura and Aizu (in Iwashiro).
100	1532	3	6	Tenmon.	1	1	20	Sanuki.
101	1544	5	23	"	13	4	22	Satsuma.
102	1545			"	14	3		"
103	1549	5	21	"	18	4	14	Kai.
104	1553	10	11	"	22	8	24	Kamakura.
105	1555	9	14	Koji.	1	8	19	Aizu (in Iwashiro).
106	1563	2	28	Yeiroku.	6	1	26	Hitachi, Iwaki, Shimotsuke and Aizu (in Iwashiro).
107	"	12	27	"	"	12	2	Musashi, Shimotsuke, Hitachi, Iwaki and Aizu (in Iwashiro).
108	1578	12	8	Tensho.	6	10	29	Mikawa.
109	1585	7	31	"	13	7	5	"
110	1586	1	15	"	"	11	26	Kaga.
111	"	"	18	"	"	"	29	Sanuki, Awaji, Wakasa, Echizen, Kaga, Hida, Yamashiro, Yamato, Kawachi, Izumi, Settsu, Omi, Mino, Iga, Ise, Mikawa and Omari.
112	1589	3	21	"	17	2	5	Suruga and Totomi.
113	1596	9	1	Keicho.	1	7 <sup>2</sup>	9	<del>Sanuki</del> Satsuma. <i>Slightly felt in Kyoto.</i>
114	"	"	4	"	"	"	12	Kyoto and Kinai provinces, Kii, Chikuzen, and several other provinces.
115	1600	7	23	"	5	6	13	Tsugaru (in Mutsu), the Iwakisan erupted.
116	1605	1	31	"	9	12	16	Kii, Ise, Shima, Owari, Mikawa, Totomi, Suruga, Izu, Awa, Kazusa, Shimosa, Hachijo-shima, and provinces in Kiushiu and Shikoku.
117	1611	9	27	"	16	8	21	Aizu (in Iwashiro).
118	"	12	2	"	"	10	28	Sendai (in Rikuzen) and Yezo.

No.	EUROPEAN DATE.			JAPANESE DATE.				DISTRICT.
	Year	Month	Day	Period	Year	Month	Day	
119	1614	11	26	Keicho.	19	10	25	Takata (in Echigo); strongly felt in Kyoto and at Odawara (in Sagami).
120	1615	6	26	Genwa.	1	6	1	Yedo.
121	1616	9	9	"	2	7	28	Sendai (in Rikuzen).
122	1624	6	19	Kan-yei.	1	5	4	Shimotsuke.
123	1628	8	10	"	5	7	11	Yedo.
124	1630	8	1	"	7	6	23	"
125	1633	3	1	"	10	1	21	Odawara (in Sagami) and Kanto.
126	1635	3	10	"	12	1	21	Mutsumaye (in Oshima).
127	"	"	12	"	"	"	23	Yedo.
128	1639	11		"	16	11		Echizen.
129	1644	3		Shoho.	1	3		Nikko (in Shimotsuke).
130	"	10	18	"	"	9	18	Honjo (in Ugo).
131	1646	6	9	"	3	4	26	Sendai, Mutsu and Dewa.
132	1647	6	16	"	4	5	14	Yedo and Sagami.
133	1648	6	12	Kei-an.	1	4	22	Sagami; strongly felt in Yedo.
134	1649	3	17	"	2	2	5	Aki and Iyo (slightly felt in Kyoto).
135	"	7	30	"	"	6	21	Yedo and Nikko (in Shimotsuke).
136	"	9	1	"	"	7	25	Yedo.
137	1659	4	21	Manji.	2	2	30	Shimotsuke, Iwaki and Iwashiro; strongly felt in Yedo.
138	1661	12	10	Kanbun.	1	10	19	Tosa.
139	1662	5	12	"	2	3	24	Kyoto, Yamashiro, Kawachi and Settsu; strongly felt in Yedo.
140	"	6	16	"	2	5	1	Kyoto, Yamashiro, Yamato, Kawachi, Izumi, Settsu, Wakasa, Tanba, Iga, Ise, Owari, Mikawa, Omi, Mino, Shinano and Hizen.

No.	EUROPEAN DATE.			JAPANESE DATE.				DISTRICT.
	Year	Month	Day	Period	Year	Month	Day	
141	1662	10	30	Kanbun.	2	9	19	Hiuga and Osumi.
142	1663	8	17	"	3	7	15	Oshima and Iburi, the Usudake erupted.
143	1664	1	4	"	"	12	6	Kyoto and Yamashiro.
144	"	8	3	"	4	6	12	Kii.
145	"			"	"			Liu-kiu.
146	1665	6	25	"	5	5	12	Kyoto.
147	1666	2	1	"	"	12	27	Takata (in Echigo).
148	1668	8	28	"	8	7	21	Sendai (in Rikuzen).
149	1670	7	21	"	10	6	5	Osumi (in Sagami).
150	"	9	28	"	"	8	15	Tsushima.
151	1676	7	12	Yenpo.	4	6	2	Tsuwano (in Iwami).
152	1677	4	13	"	5	3	12	Tsugaru (in Rikuoku).
153	1683	6	18	Tenwa.	3	5	24	Nikko (in Shimotsuke); strongly felt in Yedo.
154	"	10	20	"	"	9	1	Nikko.
155	1685	10	8	Teikyo.	2	9	11	Suwo and Nagato; strongly felt in Kyoto.
156	1686	10	3	"	3	8	16	Totomi and Mikawa; slightly felt in Kyoto.
157	1694	6	19	Genroku.	7	5	27	Shonai (in Uzen), and Akita and Noshiro (in Ugo).
158	1697	11	25	"	10	10	12	Sagami, especially Kamakura; strongly felt in Yedo.
159	1699	9	23	"	12	9	1	Kii.
160	1700	4	16	"	13	2	27	Tsushima.
161	1703	12	31	"	16	11	23	Yedo, Musashi, Sagami, Kai, Awa, Kazusa, Shimosa, Suruga, Izu, Hitachi and Iwaki.
162	1706			Hoyei.	3			Miyako-shima (Liu-kiu).
163	1707	10	28	"	4	10	4	Hiuga, Bungo, Sanuki, Iyo, Toa, Awa (in Shikoku), Awaji, Harima, Kii, Yamashiro, Yamato, Kawachi, Settsu, Izumi, Omi, Mino, Shinano, Ise, Shima, Owari, Mikawa, Totomi, Suruga, Izu, Sagami, Kai, and other provinces in Kiushiu and Sanyodo; strongly felt in Yedo.

No.	EUROPEAN DATE.			JAPANESE DATE.				DISTRICT.
	Year	Month	Day	Period	Year	Month	Day	
164	1707	12	16	Hoyei.	4	11	23	Suruga and Totomi, the Fujisan erupted.
165	1709	3	11	"	8	2	1	Mimasaka, Inaba and Hoki; slightly felt in Kyoto.
166	1714	4	28	Shotoku.	4	3	15	Shinano.
167	1718	8	22	Kyoho.	3	7	26	Yamashiro, Shinano, Totomi and Mikawa; strongly felt in Kyoto.
168	1723	12	17	"	8	11	20	Saikaido provinces.
169	1725	10	30	"	10	9	25	Nagasaki.
170	1729	8	1	"	14	7	7	Noto and Sado.
171	1730	3	12	"	15	1	24	Tsushima.
172	1731	10	7	"	16	9	7	Ko-ori (in Iwashiro).
173	1751	5	20	Horeki.	1	4	25	Takata (in Echigo).
174	1762	10	31	"	12	9	15	Sado.
175	1766	3	8	Meiwa.	3	1	28	Mutsu and Oshima.
176	1769	8	29	"	6	7	28	Sadowara (in Hiuga).
177	1778	2	14	Anyei.	7	1	18	Aki, Bizen, Bitchu and Bingo.
178	1780	5		"	9	4		Urup Island (Chishima).
179	1782	8	23	Tenmei.	2	7	15	Yedo and Sagami.
180	1792	4	21	Kansei.	4	3	1	Hizen, the Unsen-dake erupted.
181	1798	7	8	"	10	5	25	Kaga.
182	1802	12	9	Kyowa.	2	11	15	Sado.
183	1804	7	13	Bunka.	1	6	7	Shonai (in Uzen).
184	1810	2	4	"	7	1	1	Sado.
185	1812	12	7	"	9	11	4	Yedo and neighbouring provinces.
186	1815	3	2	"	12	1	22	Kaga.
187	1819	8	2	Bunsei.	2	6	12	Yamashiro, Yamato, Kawa- chi, Settsu, Omi, Mino, Iga and Ise.
188	1821	12	13	"	4	11	19	Onuma-gun (in Iwashiro).
189	1822	3	12	"	5	1 <sup>o</sup>	19	Yezo; the Usu-dake erupted.

No.	EUROPEAN DATE.			JAPANESE DATE.				DISTRICT.
	Year	Month	Day	Period	Year	Month	Day	
190	1828	12	18	Bunsei.	11	11	12	Sanjo, Mitsuke, Nagaoka, Yoita and Wakino (all in Echigo).
191	1830	8	19	Tenpo.	1	7	2	Kyoto, Yamashiro, Wakasa, Tanba and Omi.
192	1831	11	13	"	2	10	10	Hizen.
193	1833	12	7	"	4	10	26	Sado.
194	1834	2	9	"	5	1	1	Ishikari.
195	1835	8	19	"	6	7	25	Rikuzen, Rikuchiu, Mutsu and Nemuro.
196	1841	5		"	12	4		Suruga.
197	1843	4	25	"	14	3	26	Kushiro and Nemuro.
198	1844	5	11	Koka.	4	3	24	Shinano and Echigo.
199	1853	3	11	Ka yei.	6	2	2	Odawara, Sagami, Suruga, Izu, Totomi and Mikawa.
200	1854	7	9	Ansei.	1	6	15	Echigo, Tanba, Harima, Yamashiro, Yamato, Kawachi, Izumi, Settsu, Echizen, Omi, Mino, Iga, Ise, Owari, Mikawa and Kii.
201	"	12	23	"	1	11	4	Buzen, Bungo, Hizen, Higo, Chikuzen, Chikugo, Hiuga, Osumi, Satsuma, Harima, Bizen, Bitchiu, Bingo, Aki, Suwo, Nagato, Echigo, Izumo, Iwami, Wakasa, Echizen, Kii, Awaji, Awa (in Shikoku), Sanuki, Iyo, Tosa, Yamashiro, Yamato, Kawachi, Izumi, Settsu, Omi, Shinano, Mino, Iga, Ise, Shima, Owari, Mikawa, Totomi, Suruga, Kai, Izu, Sagami, Musashi and Shimotsuke.
202	1855	11	11	"	2	10	2	Yedo, Musashi, Sagami and Shimosa.
203	1856	8	23	"	3	7	23	Hakodate (in Oshima) and Yufutsu (in Iburi).
204	1857	6	14	"	4	5 <sup>c</sup>	23	Suruga.
205	"	10	15	"	4	8	28	Iyo.
206	1858	4	9	"	5	2	26	Echizen and Etchii.

No.	EUROPEAN DATE.			JAPANESE DATE.				DISTRICT.
	Year	Month	Day	Period	Year	Month	Day	
207	1858	4	23	Ansei.	5	3	10	Shinano.
208	1872	3	14	Meiji.	5	2	6	Iwami.
209	1874	2	28	"	7	2	28	Teshiwo.
210	1881	10		"	14	10		Kunashiri Island (Chishima).
211	1889	7	28	"	22	7	28	Kumamoto.
212	1891	10	28	"	24	10	28	Mino, Owari, Echizen, Mikawa, Settsu, Yamashiro, Yamato, Kawachi, Ise, Omi, Shinano and Totomi.
213	1892	12	9	"	25	12	9	Noto.
214	1893	9	7	"	26	9	7	Kagoshima (in Satsuma).
215	1894	3	22	"	27	3	22	Nemuro, Kushiro and Kunashiri Island.
216	"	6	20	"	27	6	20	Tokyo and vicinity.
217	"	10	22	"	27	10	22	Shonai (in Uzen).
218	1896	6	15	"	29	6	15	Great sea-waves along the eastern coast of the north Japan.
219	"	8	31	"	"	8	31	Ugo and Rikuchiu.
220	1897	1	17	"	30	1	17	Nagano (in Shinano).
221	"	2	20	"	"	2	20	Sendai and eastern part of Rikuzen.
222	1898	8	10	"	31	8	10	Chikuzen.

TABLE II.

Number of Destructive Earthquakes in Japan.

Century.	Number of destructive earthquakes.	Century.	Number of destructive earthquakes.
V	1	XIII	13
VI	1	XIV	8
VII	2	XV	25
VIII	10	XVI	26
IX	16	XVII	45
X	3	XVIII	22
XI	4	XIX	41
XII	5	Sum	222

5. From Table II it will be seen that the numbers of destructive earthquakes in the 5th, 6th, and 7th centuries are very few. This circumstance may of course be due to the imperfection of historical records in those early times, it being only from the end of the 7th century that the records begin to augment. Taking as starting point December, 678 A.D., when the first of the two destructive earthquakes in the 7th century took place, we have 220 such earthquakes in Japan<sup>1</sup> in the interval of 1220 years down to the end of 1898, there being on the average one destructive earthquake in every 5 years and 7 months. As, however, the earthquake records in old times, which relate to remote provinces, would naturally be imperfect, the above average interval between two successive destructive shocks is without doubt somewhat longer than what was actually the case. On

1) Formosa excepted.

the other hand, in the epoch of the Tokugawa Shogunate which began from the commencement of the 17th century, the records of destructive earthquakes must, except for Hokkaido and Liu-kiu Islands, be very nearly perfect, as it was the rule of the Government to let each feudal chief send in a detailed report of the damage caused in his dominion by an earthquake or other natural events. The earliest recorded earthquake in Hokkaido happened on the 2nd December, 1611, and that in Liu-kiu Islands first in 1664.

In the interval of 299 years from the beginning of the 17th century to the end of the year 1898 there were in Japan<sup>1</sup> one hundred and eight destructive earthquakes, of which eleven happened in Hokkaido, and two in Liu-kiu Islands. The mean interval of time between two successive destructive earthquakes in this epoch was, therefore, for the whole of Japan,<sup>1</sup> 2 years and 9 months, or, excluding Hokkaido and Liu-kiu Islands, 3 years and 2 months.

From the above we may conclude that one part or other of Japan<sup>1</sup> is likely to be visited by a destructive earthquake once in nearly every 2½ years on the average.

### III. Annual Variation of the Frequency of Destructive Earthquakes.

6. The relation of destructive earthquakes to time may be considered under two heads: their distribution through the year, and their distribution in historic times, of which the former or the annual variation of the frequency of destructive earthquakes in Japan will be taken first.

---

1) Formosa excepted.

Tables III, IV and V respectively show the monthly, seasonal and half-yearly distribution of all the destructive earthquakes contained in Table I, except six whose exact dates are not recorded.

**TABLE III.**

Monthly Distribution of 216 Destructive Earthquakes in Japan.

Month.	Number of earthquakes.
I	10
II	13
III	18
IV	12
V	18
VI	19
VII	23
VIII	32
IX	16
X	19
XI	14
XII	22

**TABLE IV.**

Seasonal Distribution of 216 Destructive Earthquakes in Japan.

Season.	Number of earthquakes.
Spring { March. April. May.	48
Summer { June. July. August.	74
Autumn { September. October. November.	49
Winter { December. January. February.	45

**TABLE V.**

Semi-annual Distribution of 216 Destructive Earthquakes in Japan.

Division of the year.	Number of earthquakes.
Warmer months { April, May, June, July, August, September.	120
Colder months { October, November, December, January, February, March.	96

According to Table III, the maximum monthly number of 32 occurred in August and the minimum of 10 in January, the ratio of these two numbers being as 3.2:1.

According to Table IV, the maximum seasonal number of 74 occurred in Summer, and the minimum of 45 in Winter, the ratio of these two numbers being as 1.6:1. The numbers for Spring, Autumn and Winter, do not, however, differ much among themselves.

Further, according to Table V, the earthquake number in the warmer months of the year was greater in the ratio of 1.3:1 than that in the colder months.

The results contained in Tables III and IV are illustrated respectively in figs. 1 and 3, the curves being drawn, not always through representation points themselves, but by free-hand through the positions of the arithmetical means of two successive points. The same method of curve-drawing has been employed in all the other similar figures.

7. For the sake of comparing the annual variation of the frequency of destructive earthquakes with that of ordinary small ones, or those which are not the after-shocks of great earthquakes, I give in Table VI the monthly numbers of earthquakes observed in whole of Japan<sup>1</sup> during ten years between 1885 and 1894.

The enormous rise in earthquake numbers after November 1891 is due to the occurrence of the Mino-Owari earthquake on the 28th October, 1891, of the Kagoshima earthquake on the 7th September, 1893, of the Hokkaido earthquake on the 20th March, 1894, and several other strong earthquakes, each of which was followed by a great number of after-shocks. Hence,

---

1) Formosa and Liu-kiu Islands excepted.

only the earthquake numbers for the months between January, 1885, and October,<sup>1</sup> 1891, have been utilised in deducing the mean monthly earthquake frequencies given at the bottom of the Table, which are intended to represent the approximate state of seismic activity in *ordinary* times, namely, in those years free from destructive earthquakes and their after-shocks, the numbers for the six months, from July to December, 1889, having also been left out of account, in order to exclude the greater portion of the after-shocks of the Kumamoto earthquake of the 28th July, 1889.

In Tables VII and VIII are given respectively the seasonal and the semi-annual distribution of *ordinary* or non-destructive earthquakes deduced from Table VI.

TABLE VI.

Monthly Number of Earthquakes in Japan,<sup>2</sup> during 10 years, 1885-1894.

Month Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Sum
1885	32	44	37	37	51	46	32	30	45	41	47	40	482
1886	38	39	49	38	58	30	36	46	41	33	22	42	472
1887	41	58	30	29	60	38	38	35	43	20	35	56	483
1888	53	77	46	42	69	40	40	34	42	47	85	55	630
1889	53	57	63	67	60	39	65	192	79	103	82	70	930
1880	86	65	83	80	93	66	59	55	43	63	98	49	845
1891	34	70	64	83	66	59	57	72	31	98	1412	624	2670
1892	411	203	148	162	137	93	111	116	163	123	119	132	1918
1893	118	90	128	109	115	156	102	77	297	136	102	106	1536
1894	415	182	570	244	144	170	121	250	154	189	150	140	2729
Mean.	48.1	58.6	53.1	53.7	65.3	45.4	43.7	45.3	41.7	50.3	57.4	48.4	

1) The earthquake number for October 1891 does not include the after shocks of the Mino-Owari Earthquake of the 28th of the same month.

2) Formosa and Liu-kiu Islands excepted.

TABLE VII.

Mean Seasonal Distribution of Earthquakes in Japan.<sup>1</sup>

Season.	Spring { March. April. May.	Summer { June. July. August.	Autumn { September. October. November.	Winter { December. January. February.
Number of eqkes.	172	134	149	155

TABLE VIII.

Mean Semi-Annual Distribution of Earthquakes in Japan.<sup>1</sup>

Division of the year.	Warmer Months. (April, May, June, July, August, Sep- tember.)	Colder Months. (October, November, December, January, February, March.)
Number of eqkes.	295	316

According to Table VI, the greatest monthly number 65.3 occurred in May, and the smallest numbers, varying between 41.7 and 45.4, in the months of June, July, August and September, the ratio of the maximum to the minimum being as 1.6:1. According to Table VII, the maximum seasonal number

<sup>1</sup>) Based on the earthquake numbers given in Table VI for the months between January 1885 and October 1891.

of 172 occurred in Spring, and the minimum of 134 in Summer, the ratio of the two numbers being as 1.3:1. Finally, according to Table VIII, the number of earthquakes in the warmer months of the year was greater in the ratio of 1.1:1 than that in the colder months. The results contained in Tables VI and VII are illustrated in figs. 2 and 4.

8. Comparing figs. 1 and 3 with figs. 2 and 4, the annual variation of the frequency of *ordinary* small shocks, whose minimum occurs in the months of June, July, August and September, will be observed to be just the reverse of that of destructive earthquakes, whose maximum occurs in the months of July and August.<sup>1</sup>

To explain this fact, we may remark that the geotechnic disturbances, which caused the destructive earthquakes given in Table I, were most probably greater than those of the majority of the ordinary earthquakes included in Table VI. Now, as an earthquake implies the removal of a weak point in the earth's crust, and the consequent settling of the latter to a stable equilibrium, the constant occurrence of small earthquakes is, for unstable countries like Japan, to be regarded as maintaining the region concerned in a normal or safe condition, thereby preventing any abnormal accumulation of stress in the earth's crust. Their non-occurrence, or an unusually low seismic frequency may, on the other hand, cause an accumulation of stress in the earth's crust, thereby facilitating the occurrence of great or destructive seismic disturbances.

---

1. Dr. C. Davison found from Mallet's Catalogue a similar reversal of the maximum epoch in the annual variation of *destructive* and *slight* earthquakes. See Trans. Roy. Soc. Lond., Vol. 184 (1893), p. 1116.

#### IV. Distribution of Destructive Earthquakes in Historic Times of Japan.<sup>1</sup>

9. The distribution in time of the destructive earthquakes in Japan<sup>1</sup> from the 8th century to the present time is graphically shown in fig. 5, from which it will be observed that the distribution was not uniform, but was rather in groups.

10. The epochs of the minimum frequency of destructive earthquakes selected from the epoch of the Tokugawa Shogunate, which dates from the beginning of the 17th century, were as follows:—in the interval of 31 years between the earthquake at Ko-ori (in Iwashiro) of the 7th October, 1731, and the earthquake in Sado of the 31st October, 1762, there was only the earthquake at Takata (in Echigo) of the 20th May, 1751; and in the interval of 31 years and 3 months between the Shinano earthquake of the 23rd April, 1858, and the Kumamoto earthquake of the 28th July 1889, there was only the earthquake in Iwami of the 14th March, 1872.

11. On the other hand, the most remarkable epochs of maximum frequency of destructive earthquakes were as follows: in the interval of 5 years and 5 months between March, 1644, and the 3rd August, 1649, there were nine destructive earthquakes, giving as average one in every 8 months; in the interval of 11 years and 5 months between the 21st April, 1659, and the 28th September, 1670, there were twelve destructive earthquakes, giving as average one in 12½ months; in the interval of 5 years and 1 month between the 11th March, 1853, and the 23rd April, 1858, there were eight destructive earthquakes, which give one to every 9 months; and, finally, in the interval of 9 years, bet-

---

1) Formosa, Liu-kiu Islands and Hokkaido excepted.

ween the 28th July, 1889, and the 10th August, 1898, there were eleven destructive earthquakes, giving as average one in every 10 months.

12. If we count, instead of the actual number of destructive earthquakes, the number of years in which one or more occurred, we find 78 instances in the interval of 299 years from the beginning of the 17th century to the present time; the maximum number of destructive earthquakes in one year, namely three, having occurred in 1649 and 1662. In other words, 26 years in every 100 were each visited, on the average, by one, two, or three destructive earthquakes, the other 74 years remaining free from such seismic disturbances.

13. From fig. 5 it will be seen that destructive earthquakes happen sometimes singly or isolated, but tend to occur in groups in epochs of maximum frequency.

As a trial, I have in Table IX divided the 154 destructive earthquakes since the beginning of the 14th century into 41 groups, whose longest duration was 15 years, the maximum earthquake number included in one group being 12.

TABLE IX.

Time Distribution of Destructive Earthquakes in Japan.<sup>1</sup>

(From the 14th century to the present time).

Time interval.	Number of destructive eqkes.	Mean epoch.	Difference	Time interval.	Number of destructive eqkes.	Mean epoch.	Difference.
yr. month yr. month		yr. month	yr.	yr. month yr. month		yr. month	yr.
1325.12-1331. 8	3	1329. 9	21.	1624. 6-1639.11	6	1632. 0	17.
1350. 7	1	1350. 7	11.	1644. 3-1649. 8	9	1647. 9	16.
1361. 6	2	1361. 8	14.	1659. 4-1670. 7	12	1664.11	17.
1375. 5	1	1375. 5	13.	1676. 7-1677. 4	2	1677. 0	12.
1388. 2	1	1388. 2	13.	1683. 6-1686.10	4	1685. 0	8.
1400. 9	1	1400. 9	7.	1694. 6-1709. 3	8	1702. 8	18.
1407. 2-1408.11	3	1408. 1	15.	1714. 4-1718. 8	2	1716. 6	14.
1420. 9-1425.11	2	1423. 4	19.	1723.12-1731.10	5	1728. 3	12.
1433. 2-1454.12	9	1442. 9	24.	1751. 5	1	1751. 5	23.
1466. 5	1	1466. 5	10.	1762.10-1769. 8	3	1766. 3	15.
1474. -1479. 9	3	1476. 5	20.	1778. 2-1782. 8	2	1780. 5	14.
1489. 5-1502. 1	9	1496. 3	16.	1792. 4	1	1792. 4	12.
1507. 4-1517. 7	8	1512. 5	13.	1798. 7-1804. 7	3	1802. 1	10.
1525.9	1	1525. 9	7.	1810. 2-1815. 3	2	1812.10	11.
1532 3	1	1532. 3	17.	1819. 8-1821.12	2	1820.10	8.
1544. 5-1555. 9	5	1549. 8	14.	1828.12-1835. 8	5	1832. 3	11.
1563. 2-1563.12	2	1563. 7	15.	1841. 5-1844. 5	1	1842.11	11.
1578.12	1	1578.12	8.	1853. 3-1858. 4	8	1856. 5	14.
1585. 7-1589. 3	4	1586. 9	13.	1872. 3	1	1892. 3	16.
1596. 9-1605. 2	4	1599. 9	15.	1889. 7-1898. 8	11	1894.10	23.
1611. 9-1616. 9	4	1614. 9		Mean.....		13½	

<sup>1</sup>) Formosa, Liu-kin Islands and Hokkaido excepted.

The *mean epochs* given in the third column of Table IX, each of which indicates the mean of the dates of those earthquakes included in one group, may be interpreted as representing the epochs of greatest activity of destructive shocks. Again, the *differences* given in the fourth column of the same table, which are the intervals between the successive *mean epochs*, vary between 7 and 23 years, the average value being  $13\frac{1}{2}$  years. The conclusion is that the epochs of maximum activity of destructive shocks would recur on the average in every 13 or 14 years.

14. It is impossible to determine whether there was in historic times a permanent variation in the frequency of destructive earthquakes in Japan as a whole ; the increase of earthquake records in later centuries implying, of course, not necessarily any such variation. The frequency seems, however, to be subject to certain fluctuations of long period. Thus the curve in fig. 6, which represents the variation of the 10-yearly activity of destructive earthquakes in Japan, indicates a maximum in the middle of the 17th century, and one minimum in the middle of the 16th and another in the middle of the 18th century, the length of the period being in this case about 200 years. Again, according to fig. 7, which shows for the whole country the variation of the activity of destructive earthquakes in every half century, since the latter half of the 6th century (see Table XII), there seems to exist, in the interval of about 1000 years between the middle of the 8th century and that of the 18th a more or less definite series of 5 maxima and minima, giving a period of an average length of 200 years.

15. To see whether the long-period fluctuations of *ordinary* small shocks and destructive earthquakes take place simultaneously, I shall compare the curve of the half-century activity

of destructive earthquakes in Japan, fig. 7, with that of the total seismic activity for Kyoto, fig. 9. It will be observed that both curves present maxima and minima in nearly the same epochs. No similar result, however, is to be obtained when we examine the thing more in detail. Thus, the curve of the decennial activity of destructive earthquakes in Japan, fig. 6, presents a *minimum* at the middle of the 18th century, but the curve of frequency of small earthquakes at Kyoto since the 16th century, fig. 8, presents a *maximum* at the same epoch. When considered in a general way, therefore, destructive earthquakes and ordinary small shocks seem to present the maxima and minima of their frequency in nearly the same epochs; but, when examined in detail, the maxima of short-period fluctuations in the frequency of one kind of earthquakes may happen, as has been found to be the case with the annual variation, simultaneously with the minima in the frequency of the other kind of earthquakes and *vice versa*. It may be observed that these two conclusions are not contradictory to each other, the case being somewhat analogous to the relation of volcanoes and earthquakes. It is well known that a country, rich in active volcanoes, is also very frequently disturbed by earthquakes. But when we examine different parts of such a country in detail, it will be found that the immediate vicinity of an active volcano is rarely affected by destructive earthquakes.

#### V. Geographical Distribution of Destructive Earthquakes in Japan.

16. The geographical distribution of destructive earthquakes in Japan is given in Table X, the figures in the second and third columns giving the numbers of earthquakes which took place

in each province since the earliest times (5th century), and since the 17th century. See figs. 20 and 21.

TABLE X.

Geographical Distribution of Destructive Earthquakes in Japan.<sup>1</sup>

Province.	Number of destructive eqks. from the 5th century to the present time.	Number of destructive eqks. from the 17th century to the present time.	Average interval of time.	Province.	Number of destructive eqks. from the 5th century to the present time.	Number of destructive eqks. from the 17th century to the present time.	Average interval of time.
Yamashiro	34	10	years 30	Hitachi	6	1	years
Yamato	21	6	50	Omi	10	7	43
Kawachi	15	8	37	Mino	10	6	50
Izumi	9	4	75	Hida	2	0	
Settsu	16	7	43	Shinano	12	9	33
Iga	7	4	75	Kotsuke	3	0	
Ise	12	7	43	Shimotsuke	11	7	43
Shinju	4	3	100	Iwaki	4	2	
Owari	8	6	50	Iwashiro	22	4	75
Mikawa	15	9	33	Rikuzen	7	7	43
Totomi	13	8	37	Rikuchiu	4	4	75
Suruga	13	8	37	Mutsu.	5	5	60
Kai	9	3	100	Uzen	3	3	100
Izu	8	5	60	Ugo	4	3	100
Sagami	28	11	27	Wakasa	4	3	100
Musashi	18	14	21	Echizen	6	5	60
Awa (in Tokai-do)	3	3	100	Kaga	3	2	
Kazusa	3	3	100	Noto	2	2	
Shimosa	6	3	100	Etchiu	2	1	

1) In the seven cases at the end of the list (marked with asterisks) the districts are given in too wide and indefinite terms. These have therefore been excluded in the construction of the maps, figs. 20 and 21.

Province.	Number of destructive eqks, from the 6th century to the present time.	Number of destructive eqks, from the 17th century to the present time.	Average interval of time.  years.	Province.	Number of destructive eqks, from the 6th century to the present time.	Number of destructive eqks, from the 17th century to the present time.	Average interval of time.  years.
Echigo	7	5	60	Hizen	5	5	60
Sado	5	5	60	Higo	5	2	
Kii	13	6	50	Hiuga	4	4	75
Awaji	4	2		Osumi	4	2	
Awa (in Shi- koku.	5	3	100	Satsuma	5	2	
Sanuki	5	3	100	Iki	0	0	
Iyo	6	5	60	Tsushima	4	3	100
Tosa	5	4	75	Oshima	4	4	75
Tanba	5	3	100	Shiribeshi	0	0	
Tango	2	2		Ishikari	1	1	
Tajima	0	0		Teshiwo	1	1	
Inaba	2	2		Kitami	0	0	
Hoki	1	1		Iburi	2	2	
Izumo	2	1		Hitaka	0	0	
Iwami	3	3	100	Tokachi	0	0	
Harima	4	3	100	Kushiro	2	2	
Mimasaka	1	1		Nemuro	3	3	
Bizen	2	2		Chishima	2	2	
Bitchu	2	2		Liu-kiu	2	2	
Bingo	2	2		Kinai*	1	0	
Aki	3	3	100	Dewa*	1	0	
Suwo	1	1		Mutsu*	1	0	
Nagato	2	2		Kiushiu*	2	2	
Chikuzen	3	2		Chikushi*	1	0	
Chikugo	1	1		Yezo*	1	1	
Buzen	1	1		Several pro- vinces.*	5	0	
Bungo	2	2					

17. *Distribution of destructive earthquakes since the earliest times.* The maximum number of 34 occurred in Yamashiro, due without doubt to that province's containing Kyoto, which was the capital from the end of the 8th century till 1867. Sagami and Musashi, for which the numbers of destructive earthquakes were respectively 28 and 18, seem really to have been the regions most disturbed in Japan, as the greatest numbers of destructive earthquakes since the 17th century occurred in these two provinces. To sum up: no destructive earthquake occurred in the seven provinces of Iki, Oki, Tajima, Shiribeshi, Kitami, Hitaka and Tokachi; only one in the seven provinces of Chikugo, Buzen, Suwo, Hoki, Mimasaka, Ishikari and Teshio; more than eleven in the fourteen provinces of Yamashiro, Yamato, Kawachi, Settsu, Kii, Ise, Shinano, Mikawa, Totomi, Suruga, Sagami, Musashi, Shimotsuke and Iwashiro; between six and ten in the thirteen provinces of Iyo, Izumi, Iga, Omi, Echizen, Mino, Owari, Kai, Izu, Shimosa, Hitachi, Echigo and Rikuzen; and between two and five in the remaining forty-two provinces.

18. With respect to the distribution of destructive earthquakes in the interval between the 17th century and the present time, the maximum number of 14 occurred in Musashi, and the next greatest number, that of 11, in Sagami. Between six and ten destructive earthquakes occurred in the sixteen provinces of Yamashiro, Yamato, Kawachi, Settsu, Kii, Iga, Ise, Omi, Mino, Owari, Mikawa, Totomi, Suruga, Shinano, Shimotsuke and Rikuzen; only one in the ten provinces of Chikugo, Buzen, Suwo, Izumo, Hoki, Mimasaka, Etchui, Hitachi, Ishikari and Teshio; none in the nine provinces of Iki, Oki, Tajima,

Hida, Kotsuke, Shiribeshi, Hitaka, Tokachi and Kitami; and between two and five occurred in the remaining forty-six provinces.

19. *The area of earthquake disturbance.* Let us for the sake of convenience distinguish destructive earthquakes, according to the magnitude of the area of disturbance, into two kinds, namely, *local* earthquakes, in which the area of destructive motion was confined to only one province, and *non-local* earthquakes, in which the area extended over several provinces. According to this convention, the 222 destructive earthquakes contained in Table I may be divided into 149 local and 73 non-local ones, the ratio of these two numbers being as 2:1. Further, from examination of Table I, it will be seen that the provinces of Osumi, Satsuma, Higo, Hizen, Chikuzen, Tsushima, Iwami, Izumo, Kaga, Noto, Sado, Echigo, Shinano, Shimotsuke, Iwashiro, Uzen, Ugo, Ishikari and Teshiwo were generally disturbed by local shocks, non-local ones originating, with the exceptions of Shinano and Echigo, very rarely in these districts. On the other hand, Hiuga, Bungo, Tosa, Kii, Mino, and the provinces of Kinai and Tokaido were often disturbed by great non-local shocks, whose origins were generally situated off the eastern coast of Japan, and which were probably caused by faults formed parallel to the latter.

The three north-eastern provinces of Rikuzen, Rikuchu and Nemuro were often disturbed by great earthquakes of sub-oceanic origins. The areas of destructive motion in these cases seems never to have extended to the south of Hitachi and the Peninsula of Kazusa and Awa. Now, as is well known, the group of the Japanese islands forms an arc, whose concavity is turned towards the Japan Sea, and the general geographical distribution of destructive earthquakes in Japan may be summarised

as follows. The provinces on the concave or Japan-Sea side of the arc were disturbed almost only by *local* shocks ; while those on the convex or Pacific side of the arc were often disturbed by great *non-local* ones, whose origins were situated in the Ocean and which caused sometimes fearful sea-waves. Of the provinces in the central portion of the Main Island, Mino, Shinano, Shimotsuke and Iwashiro become often the seats of local destructive earthquakes. But the two other provinces of Kotsuke and Hida were very seldom disturbed by destructive earthquakes, and form, together with Tajima and a few provinces in Sanyo-do, the regions seismically most stable in the Main Island.

20. The figures in the 14th column of Table X give, for different provinces, the average intervals of time between two successive destructive earthquakes, as deduced from the numbers in the 3rd column of the same Table. Among others, the mean interval is for Musashi 21 years, and for Sagami 27 years.

#### VI. Kyoto Earthquakes.

21. Kyoto was the capital of the Empire during the 1070 years between 797 and 1867. The records of earthquakes in this city is therefore most complete, and includes 1308 shocks, of which 34 were destructive, 194 strong, and the remaining 1090 slight.

I shall consider the seismicity in Kyoto under the following three heads : firstly, destructive earthquakes ; secondly, strong and slight earthquakes ; and thirdly, the annual variation of seismic frequency.

22. *Destructive earthquakes in Kyoto.* In Kyoto, there have been since the 9th century (Table XI) 34 destructive earthquakes, which happened therefore on the average once in about 30 years. Their distribution in time is illustrated in fig. 10.

TABLE XI.

Number of Destructive Earthquakes in Kyoto.

Century.	Number of destructive earthquakes.	Century.	Number of destructive earthquakes.
IX	5	XV	6
X	3	XVI	2
XI	4	XVII	4
XII	3	XVIII	1
XIII	1	XIX	4
XIV	1		

As will be observed from fig. 10, two destructive earthquakes happened sometimes in one year, but at other time none happened in an interval of more than 50 or 100 years. Examples of the latter case are the following: intervals of 65 years between the 22nd July 976 and the 25th August 1041, of 105 years between the 26th August 1245 and the 6th July 1350, of 119 years between the 29th May 1466 and 18th December 1585, and of 123 years between the 28th October 1707 and the 19th August 1830.

In Table XII, the 34 destructive earthquakes in Kyoto are divided into five groups. The interval between the mean epochs of the successive groups varies between 209 and 285 years, giving the average of 240.

As the total number of destructive earthquakes in Kyoto is only 34, it is impossible to determine whether there was any permanent variation in the activity of such earthquakes. But it seems probable that there was nothing of the kind. Thus dividing the interval of 1100 years from the 9th century to

the present time into two equal parts, we find that there were in the first 550 years seventeen, and in the second 550 years also seventeen destructive earthquakes.

TABLE XII.

Time Distribution of Destructive Earthquakes in Kyoto.

Time Interval.	Number of destructive eqkes.	Mean epoch.	Difference.
From <small>yr. month day</small> 827. 8.11 to <small>yr. month day</small> 976. 7.22	8	<small>yr. month</small> 896. 5	<small>years.</small> 236
„ 1041. 8.25 „ 1245. 8.26	8	1132. 0	289
„ 1350. 7. 6 „ 1466. 5.29	7	1421. 0	228
„ 1585.12.18 „ 1707.10.28	7	1649. 4	209
„ 1830. 8.19 „ 1891.10.28	4	1858. 0	
Mean...240			

23. *Strong and small shocks in Kyoto.* In Kyoto there have been since the 9th century 228 strong and destructive earthquakes, whose distribution in time will be evident from fig. 11, the half-century numbers being given in the 3rd column of Table XIII. The total numbers of small earthquakes in Kyoto, which happed in the time interval between the 18th century and the 3rd year of Kei-o (1867), is 1090, the half-century numbers being given in the 4th column of Table XIII. Fig. 9 shows the variation of the general seismic activity in Kyoto from the earliest times,  $x$  denoting time in units of 50 years, and  $y$  the total seismic activity corresponding to  $x$ , obtained by adding together the numbers of small, strong and destructive earthquakes multiplied by coefficients respectively equal to 1,2 and 2.

TABLE XIII.

Half-century Number of Earthquakes in Japan and Kyoto.

Time interval.	Destructive eqkes in Japan.	Destructive and strong eqkes in Kyoto.	Small eqkes in Kyoto.	Total activity in Kyoto.
400- <sup>yr.</sup> 449	1			
450- 499	0			
500- 549	0			
550- 599	1			
600- 649	0			
650- 699	2			
700- 749	8			
750- 799	2		3	3
800- 849	5	6	88	100
850- 899	11	15	327	357
900- 949	2	3	55	61
950- 999	1	11	15	37
1000-1049	1	4	3	11
1050-1099	3	8	21	37
1100-1149	1	7	20	34
1150-1199	4	12	9	33
1200-1249	8	11	18	40
1250-1299	5	2	6	10
1300-1349	3	11	23	45
1350-1399	5	33	79	145
1400-1449	14	31	90	152
1450-1499	11	29	68	126
1500-1549	15	17	38	72
1550-1599	11	8	35	51
1600-1649	21	7	70	84
1650-1699	21	4	26	34
1700-1749	12	2	42	46
1750-1799	8	2	46	50
1800-1849	13	0	5	5
1850-1898	20	5	—	—
Sum	209	228	1090	

Both fig. 9 and fig. 11 indicate a well pronounced maximum in the 15th century, followed by a minimum in the latter half of the 17th and the first half of the 18th century. The seismic activity in Kyoto at the present time seems to be on its way to a second maximum, which may happen possibly 150 or 200 years hence. Anyway it seems not prudent to conclude that the seismic activity in Kyoto is gradually dying away<sup>1</sup>. The curve of total seismic activity in Kyoto, fig. 9, indicates a well-pronounced maximum in the latter half of the 9th century, in which interval the number of small shocks alone amounted to 327. We can not, however, conclude from this at once that the seismic activity in Kyoto reached really its *absolute* maximum in the 9th century. For, the predominating element of the curve in fig. 9 is formed by small earthquakes, whose recorded number, it must be observed, would largely depend on the state of the development of literature of the times. As the 9th century was one of the epochs in Japanese history, in which our literature greatly flourished, the record of earthquakes in this century is doubtless much more complete than in some others. On the other hand, the number of records of destructive and strong earthquakes would be influenced to a comparatively insignificant amount by the state of the times; and according to fig. 11, which illustrates the time-distribution of 228 destructive and strong earthquakes in Kyoto, the maximum in the latter half of the 9th century was much smaller than that in the 15th century.

24. Finally I give in Table XIV, for the sake of reference, the yearly numbers of earthquakes in Kyoto during 13 years between 1885 and 1897. The numbers for the two years, 1891

---

1) See Professor John Milne's paper: Note on the Great Earthquakes in Japan. *Trans. Seis. Soc. Japan*. Vol. III.

and 1892, are, owing to the after-shocks of the great Mino-Owari earthquake of the 28th October 1891, unusually great. The mean yearly number of earthquakes in Kyoto, deduced from the other eleven years, is 5.

TABLE XIV.

Yearly Earthquake Numbers in Kyoto. (Between 1885 and 1897).

Year.	Number of eqkes.	Year.	Number of eqkes.
1885	5	1892	25
1886	2	1893	5
1887	6	1894	6
1888	5	1895	14
1889	2	1896	9
1890	2	1897	3
1891	102		

25. *The annual variation of seismic frequency in Kyoto.* The monthly distribution of 228 strong earthquakes<sup>1</sup> in Kyoto is shown in Tables XV, XVI and XVII, and illustrated in figs. 13 and 15.

According to Table XV, the maximum monthly numbers of 29 and 28 occurred respectively in August and December, and the minimum of 13 both in February and September, the ratio of the greatest and least numbers being as 2.2:1. According to Table XVI, the maximum seasonal number of 65 occurred in Summer and the minimum of 52 in Autumn, the ratio of the two numbers being as 1.3:1. Comparing Tables XV and XVI with Tables III and IV, we find that the months and seasons of the maximum and minimum seismic frequencies were nearly identical for strong earthquakes in Kyoto and

1) Including 34 destructive earthquakes.

destructive earthquakes in Japan, the ratio of the maximum and minimum for the former being, however, smaller than that for the latter.

**TABLE XV.**

Monthly Distribution of 228 Destructive and Strong Earthquakes in Kyoto.

Month.	Number of earthquakes.
I	16
II	13
III	22
IV	14
V	18
VI	16
VII	20
VIII	29
IX	13
X	17
XI	22
XII	28

**TABLE XVI.**

Seasonal Distribution of 228 Destructive and Strong Earthquakes in Kyoto.

Season.	Number of earthquakes.
Spring { March. April. May.	54
Summer { June. July. August.	65
Autumn { September. October. November.	52
Winter { December. January February.	57

**TABLE XVII.**

Semi-annual Distribution of 228 Destructive and Strong Earthquakes in Kyoto.

Division of the year.	Number of earthquakes.
Warmer months { April, May, June, July, August, September.	110
Colder Months { October, November, December, January, February, March.	118

26. The monthly distribution of 1088 small earthquakes in Kyoto, whose dates are exactly known, is shown in Tables XVIII, XIX and XX, and illustrated in figs. 12 and 14. According to Table XVIII, the maximum monthly number of 110 occurred in March, and the minimum of 74 in September, the ratio of the two numbers being as 1.5:1. Comparing fig. 12 with fig. 13, we find that for Kyoto the August maximum, which is very well marked in the frequency of the strong earthquakes, is reduced to a mere trace in the case of the small earthquakes. According to Table XIX, the maximum seasonal number of 307 occurred in Spring, and the minimum of 252 in Winter, the ratio of the two numbers bring as 1.2:1.

Finally, according to Table XX, there exists no difference between the number of small earthquakes in Kyoto for the warmer and colder halves of the year.

The occurrence of minimum frequencies of Kyoto small earthquakes in Autumn and Winter does not agree with the annual variation of ordinary small earthquakes in Japan, illustrated in fig. 4, which presents the minimum in Summer. There may possibly exist some seismic peculiarity inherent in the region about Kyoto, causing its annual variation to differ from that for other parts of Japan.

TABLE XVIII.

Monthly Distribution of 1088  
Small Earthquakes in Kyoto.

Month.	Number of earthquakes.
I	79
II	82
III	110
IV	102
V	95
VI	91
VII	87
VIII	95
IX	74
X	87
XI	95
XII	91

TABLE XIX.

Seasonal Distribution of 1088  
Small Earthquakes in Kyoto.

Season.	Number of earthquakes.
Spring { March. April. May.	307
Summer { June. July. August.	273
Autumn { September. October. November.	256
Winter. { December. January. February.	252

TABLE XX.

Semi-annual Distribution of 1088 Small Earthquakes  
in Kyoto.

Division of the year.	Number of earthquakes.
Warmer months { April, May, June, July, August, September.	544
Colder months { October, November, December, January, February, March.	544

27. *Secular variation of seismic activity in Kyoto.* Tables XXI and XXII give respectively the yearly numbers of earthquakes in Kyoto for the two most disturbed epochs, namely, the 9th century and the time interval between 1340 and 1609, the *total activity* for each year being the sum of the numbers of small, strong and destructive earthquakes multiplied respectively with the coefficients 1, 2 and 2. The results contained in these two tables are illustrated in figs. 16 and 17, from which it will be seen that the seismic activity presents a series of fluctuations of periods varying between a few years and a few dozen years. The curve for the 9th century indicates more or less definitely a period of the average length of  $6\frac{1}{2}$  years. In figs. 16 and 17, each of the small circles (○) on the abscissa axis indicates a destructive earthquake in Kyoto, and it may be observed that about the year 1360 small earthquakes were very frequent in Kyoto, but these were accompanied by no destructive shock.

TABLE XXI.

Yearly Earthquake Numbers in Kyoto. (Between 800 and 899).

Year.	Slight.	Strong.	Destructive.	Total activity.	Year.	Slight.	Strong.	Destructive.	Total activity.
800				0	826	7			7
801				0	827	2		1	4
802				0	828	5	1		7
803				0	829	3	1		5
804	2			2	830	4			4
805	3			3	831	3			3
806	1			1	832	7			7
807		1		2	833	1	1		3
808				0	834	1			1
809				0	835	1			1
810	1			1	836	2	1		4
811				0	837	3			3
812	1			1	838	2			2
813				0	839	2			2
814				0	840	2			2
815				0	841				0
816	1			1	842	6			6
817				0	843	3			3
818	3			3	844				0
819				0	845	2			2
820				0	846	1			1
821				0	847				0
822				0	848	9			9
823	2			2	849	5			5
824	1			1	850	8			8
825	2			2	851	11			11

Year.	Slight.	Strong.	De- struc- tive.	Total activity.	Year.	Slight.	Strong.	De- struc- tive.	Total activity.
852	10			10	876	6			6
853	10			10	877	3	2		7
854	6			6	878	6			6
855	16			16	879	11			11
856	19		1	21	880	10	1		12
857	13			13	881	15	1	1	19
858	6			6	882	4			4
859	5	1		7	883	4			4
860	13			13	884	4			4
861	8			8	885	5			5
862	16	1		18	886	3	2		7
863	8			8	887	4		1	6
864	3	1		5	888				0
865	8			8	889				0
866	7			7	890				0
867	12			12	891				0
868	7		1	9	892				0
869	5			5	893				0
870	7			7	894				0
871	6			6	895				0
872	13			13	896				0
873	13	1		15	897				0
874	12			12	898		1		2
875	9	1		11	899	1			1

TABLE XXII.

Yearly Earthquake Numbers in Kyoto. (Between 1340 and 1609.)

Year.	Slight.	Strong.	Destruc- tive.	Total activity.	Year.	Slight.	Strong.	Destruc- tive.	Total activity.
1340		1		2	1366				0
1341	1	1		3	1367		3		6
1342	1			1	1368	2			2
1343				0	1369		1		2
1344	2			2	1370				0
1345	2			2	1371	1	2		5
1346		1		2	1372	1			1
1347	11	2		15	1373	4	2		8
1348	2			2	1374				0
1349	2	1		4	1375	2			2
1350	7	2	1	13	1376		1		2
1351	4	1		6	1377				0
1352	3			3	1378		1		2
1353				0	1379		1		2
1354				0	1380	1			1
1355	1			1	1381	3			3
1356	5			5	1382				0
1357	5			5	1383	3	1		5
1358	8	2		12	1384				0
1359	2			2	1385				0
1360	2			2	1386				0
1361	3	5		13	1387				0
1362	10	2		14	1388			1	2
1363	3	5		13	1389				2
1364	6			6	1390		1		0
1365				0	1391		1		2

Year.	Slight.	Strong.	De- struc- tive.	Total activity.	Year.	Slight.	Strong.	De- struc- tive.	Total activity.
1392				0	1421	1			1
1393				0	1422	2			2
1394				0	1423	8			8
1395	1	1		3	1424	1			1
1396				0	1425	4	4	1	14
1397				0	1426	14	1		16
1398	2			2	1427	4			4
1399				0	1428		1		2
1400	1		1	3	1429	1			1
1401	1			1	1430				0
1402		1		2	1431	3			3
1403	3			3	1432				0
1404				0	1433	4	4		12
1405	1	2		5	1434	5	1		7
1406				0	1435	6	1		8
1407		1		2	1436	1			1
1408	2		1	4	1437	2			2
1409	2			2	1438	3			3
1410	2	1		4	1439	1	1		3
1411	1	2		5	1440		1		2
1412	4	1		6	1441				0
1413		1		2	1442	1	1		3
1414				0	1443	4			4
1415				0	1444		1		2
1416				0	1445			1	2
1417				0	1446	1			1
1418				0	1447		1		2
1419	2			2	1448				0
1420		1		2	1449	5		1	7

Year.	Slight.	Strong.	Destruc- tive.	Total activity.	Year.	Slight.	Strong.	Destruc- tive.	Total activity.
1450	3			3	1479	1			1
1451	3			3	1480				0
1452		1		2	1481	2			2
1453				0	1482	2			2
1454				0	1483				0
1455				0	1484				0
1456		1		2	1485				0
1457	1			1	1486	1			1
1458	1	1		3	1487	1			1
1459	1			1	1488				0
1460	9	3		15	1489	3	3		9
1461				0	1490				0
1462		1		2	1491	2			2
1463				0	1492		1		2
1464		1		2	1493	2	2		6
1465	1			1	1494	2	1		4
1466	4		1	6	1495	1			1
1467	5	2		9	1496	1			1
1468	5	1		7	1497		1		2
1469				0	1498	4	3		10
1470	1			1	1499	8	1		10
1471		2		4	1500	7			7
1472				0	1501	1			1
1473				0	1502				0
1474				0	1503	2			2
1475	2	1		4	1504		1		2
1476				0	1505	1			1
1477	2	1		4	1506	2	1		4
1478				0	1507	1	2		5

Year.	Slight.	Strong.	Destruc- tive.	Total activity.	Year.	Slight.	Strong.	Destruc- tive.	Total activity.
1508	1			1	1537				0
1509	2			2	1538				0
1510	2	1		4	1539				0
1511	5			5	1540				0
1512	3	1		5	1541				0
1513				0	1542	1			1
1514	2	2		6	1543				0
1515				0	1544				0
1516		1		2	1545				0
1517		2		4	1546				0
1518				0	1547				0
1519		1		2	1548				0
1520	1	1		3	1549		1		2
1521		1		2	1550	1			1
1522				0	1551				0
1523				0	1552				0
1524	1			1	1553				0
1525	1			1	1554	1			1
1526	2			2	1555				0
1527		1		2	1556		1		2
1528				0	1557		1		2
1529		1		2	1558	1			1
1530				0	1559				0
1531	1			1	1560				0
1532				0	1561	1			1
1533	3			3	1562	1			1
1534				0	1563	1			1
1535				0	1564	1	1		3
1536				0	1565	1			1

Year.	Slight.	Strong.	Destruc- tive.	Total activity.	Year.	Slight.	Strong.	Destruc- tive.	Total activity.
1566	1			1	1588	1			1
1567	1			1	1589				0
1568	5			5	1590				0
1569	1			1	1591				0
1570	3			3	1592				0
1571				0	1593	2			2
1572	2	1		4	1594				0
1573	1			1	1595		1		2
1574				0	1596		2	1	6
1575	1			1	1597				0
1576				0	1598	5			5
1577				0	1599	4			4
1578				0	1600		4		8
1579				0	1601	2			2
1580				0	1602	8			8
1581				0	1603	3			3
1582	1			1	1604	10	1		12
1583				0	1605	2			2
1584				0	1606	1			1
1585			1	2	1607	1			1
1586				0	1608				0
1587				0	1609	3			3

28. *Earthquakes in Yedo (Tokyo)*. In Yedo (Tokyo) there have been since the 17th century 12 destructive earthquakes whose time distribution is illustrated in fig. 18. They were most frequent in the first half of the 17th century, when there were seven in the interval of 34 years and 3 months between the 26th June 1615, and the 1st September 1649, the mean interval between two successive shocks being 4 years and 11 months. Especially in 1649, there were two destructive earthquakes. On the other hand, there was not one destructive earthquake in the interval of 79 years between the 31st December 1703 and the 23rd August 1782.

In the course of the 245 years between the 1st September 1649 and the 20th June 1894, there were in Yedo (Tokyo) five destructive earthquakes, the mean interval being 49 years. If we simply count all the destructive earthquakes since the 17th century, the average interval becomes 25 years.

29. For the sake of reference I give in Table XXIII the yearly earthquake numbers in Tokyo during the 23 years between 1876 and 1898.

TABLE XXIII.

Yearly Earthquake Numbers in Tokyo. (Between 1876 and 1898).

Year.	Number of eqkes.	Year.	Number of eqkes.
1876	56	1888	101
1877	71	1889	113
1878	50	1890	93
1879	70	1891	123 (Modified number 97)
1880	77	1892	73
1881	64	1893	59
1882	46	1894	101 (Modified number 85)
1883	32	1895	122
1884	68	1896	216 (Modified number 184)
1885	68	1897	157 (Modified number 136)
1886	54	1898	
1887	80	Mean 82	

The great earthquake numbers for October 1891, March 1894, June 1896, and August 1897 were due to the after-shocks of four great earthquakes, which took place respectively in these four months. To obtain proper numbers for the four years concerned, the numbers for the above four months have been subtracted from the total numbers of the respective years, the remainder in each case being then multiplied by the factor  $\frac{1}{12}$ .

The results thus obtained, which are entered as *modified numbers*, have been utilised in drawing the curve of the yearly seismic frequency in Tokyo, fig. 19. The minima occurred in 1883 and 1893, and the maxima in 1880, 1889 and 1896. The

maximum in 1896 was the absolutely greatest in the time interval under consideration, the seismic frequency at the present time being probably on its way to a minimum. When looked at generally there seems to exist a period of long duration, the frequency, in the mean, increasing during the 23 years from 1878 to the present time.

December, 1898.

Seismological Institute,  
Tokyo.



1

2

3

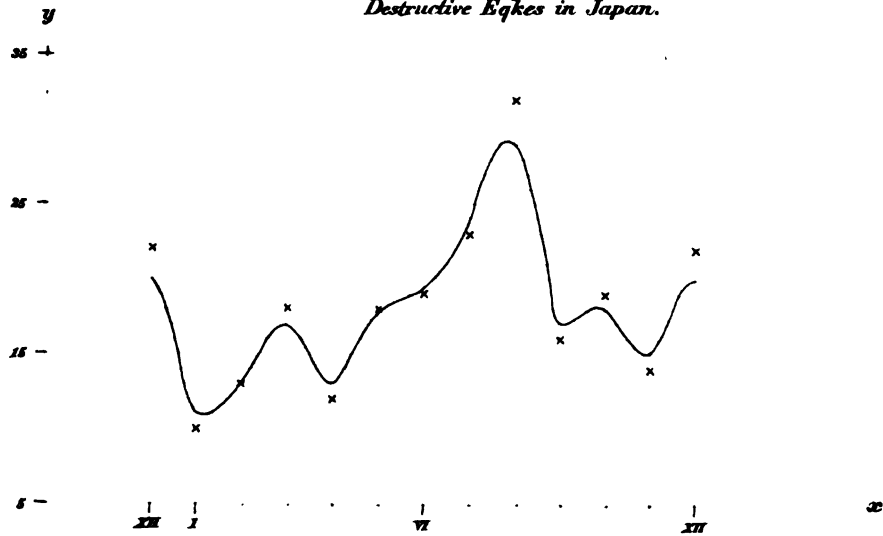
4

5

6

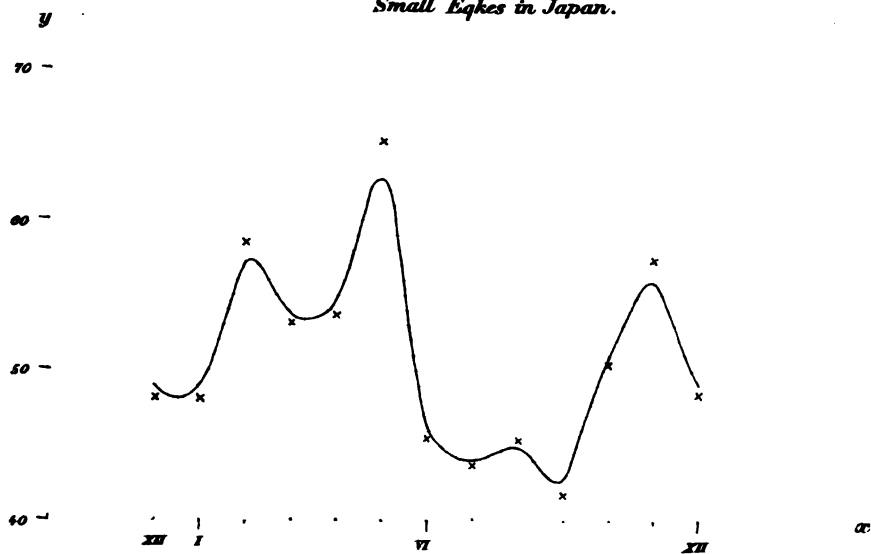
7

Fig. 1. Monthly Distribution of 216  
Destructive Eqkes in Japan.



$x = \text{Month.}$   
 $y = \text{Monthly number of destructive eqkes.}$

Fig. 2. Monthly Distribution of Ordinary  
Small Eqkes in Japan.



$x = \text{Month.}$   
 $y = \text{Mean monthly number of ordinary small eqkes.}$



Fig. 3. Seasonal Distribution of 216 Destructive  
Eqkes in Japan.

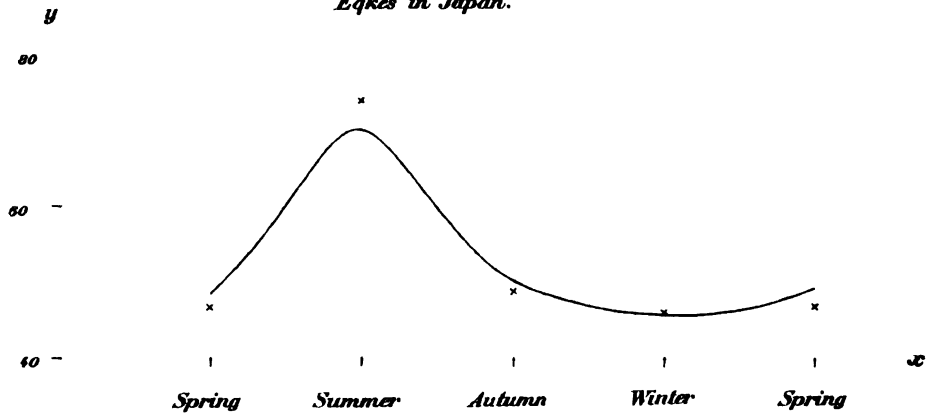
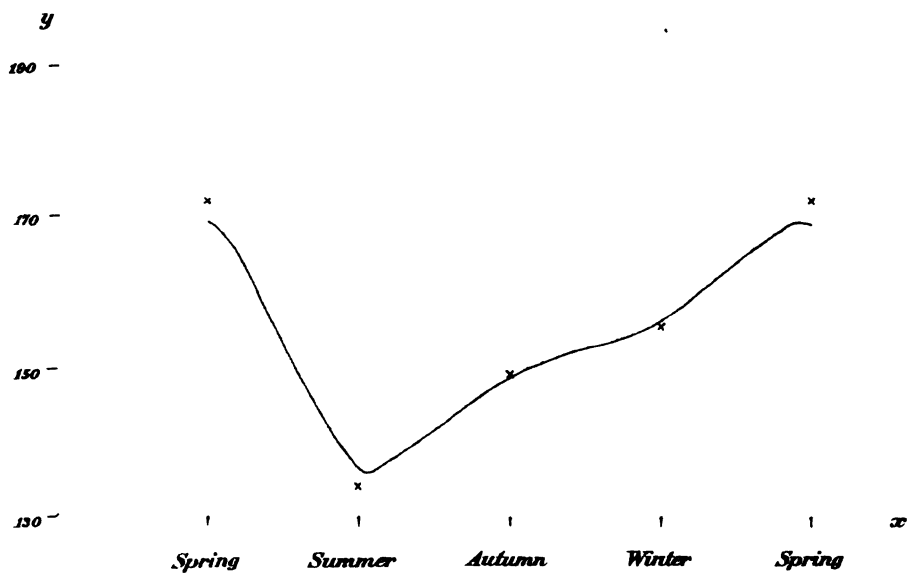


Fig. 4. Seasonal Distribution of Ordinary  
Small Eqkes in Japan.



For Figs. 3 and 4,.....  $\begin{cases} x = \text{Month.} \\ y = \text{Monthly number of eqkes.} \end{cases}$



(a)  $\begin{array}{c} | \\ 700 \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} | \\ 950 \end{array} \text{ year}$

(b)  $\begin{array}{c} | \\ 850 \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} | \\ 1000 \end{array} \text{ year}$

(c)  $\begin{array}{c} | \\ 1000 \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} | \\ 1100 \end{array} \text{ year}$

(d)  $\begin{array}{c} | \\ 1150 \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} | \\ 1300 \end{array} \text{ year}$

(e)  $\begin{array}{c} | \\ 1300 \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} | \\ 1450 \end{array} \text{ year}$

(f)  $\begin{array}{c} | \\ 1450 \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} | \\ 1600 \end{array} \text{ year}$

(g)  $\begin{array}{c} | \\ 1600 \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} | \\ 1750 \end{array} \text{ year}$

(h)  $\begin{array}{c} | \\ 1750 \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} x \\ x \\ x \end{array} \begin{array}{c} | \\ 1900 \end{array} \text{ year}$



(a)  $\begin{array}{c} \times \\ | \\ 700 \end{array}$   $\begin{array}{c} \times \\ \times \end{array}$   $\times$   $\begin{array}{c} \times \\ \times \end{array}$   $\begin{array}{c} \times \\ \times \end{array}$   $\begin{array}{c} \times \\ \times \end{array}$   $\begin{array}{c} | \\ 850 \end{array}$  year

(b)  $\begin{array}{c} \times \\ | \\ 850 \end{array}$   $\times$   $\begin{array}{c} \times \\ \times \end{array}$   $\begin{array}{c} | \\ 1000 \end{array}$  year

(c)  $\begin{array}{c} | \\ 1000 \end{array}$   $\times$   $\begin{array}{c} | \\ 1150 \end{array}$  year

(d)  $\begin{array}{c} | \\ 1150 \end{array}$   $\times$   $\times$   $\begin{array}{c} | \\ 1300 \end{array}$  year

(e)  $\begin{array}{c} | \\ 1300 \end{array}$   $\times$   $\times$   $\begin{array}{c} \times \\ \times \end{array}$   $\times$   $\times$   $\times$   $\times$   $\times$   $\begin{array}{c} | \\ 1450 \end{array}$  year

(f)  $\begin{array}{c} | \\ 1450 \end{array}$   $\times$   $\times$   $\times$   $\begin{array}{c} \times \\ \times \end{array}$   $\times$   $\begin{array}{c} | \\ 1600 \end{array}$  year

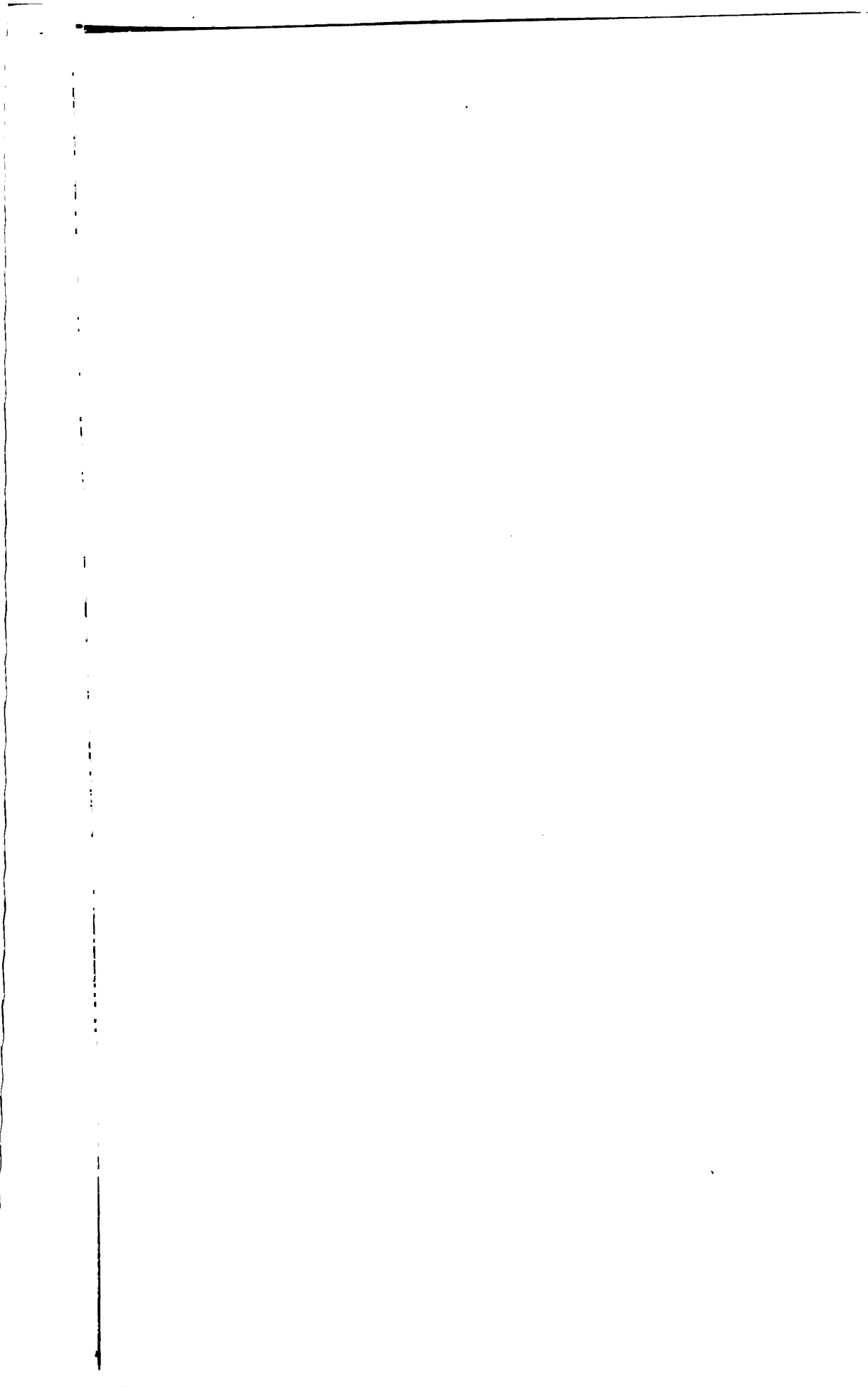
(g)  $\begin{array}{c} \times \\ | \\ 1600 \end{array}$   $\times$   $\times$   $\times \times \times$   $\times$   $\times \times$   $\times \times \times$   $\begin{array}{c} | \\ 1750 \end{array}$  year

(h)  $\begin{array}{c} \times \\ | \\ 1750 \end{array}$   $\times$   $\times$   $\times$   $\times \times \times \times$   $\begin{array}{c} | \\ 1900 \end{array}$  year

\_\_\_\_\_

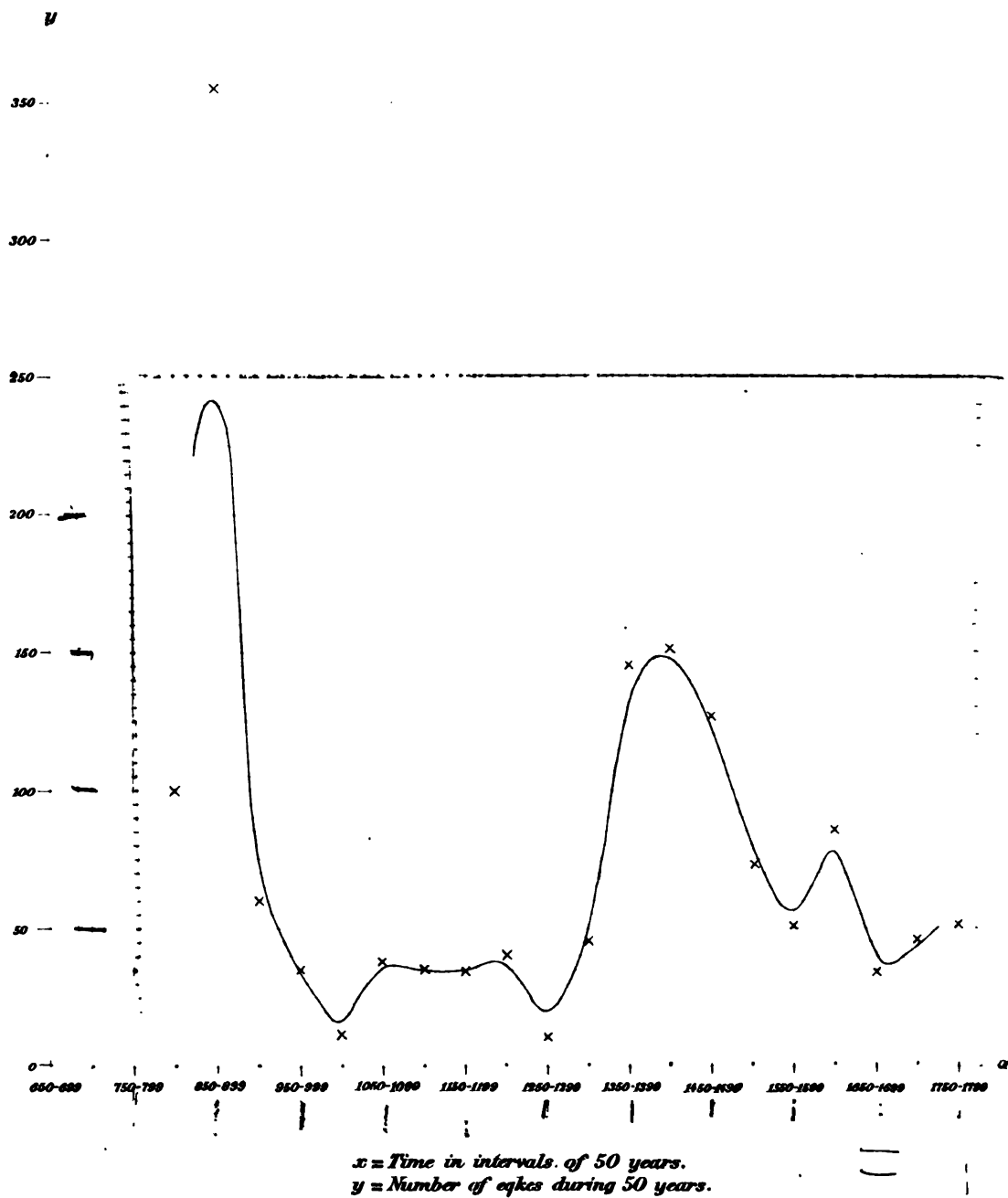
1

1



\_\_\_\_\_

Fig. 9. Seismic Activity in Kyoto.  
(From the 8th to the 18th century.)





**Fig.**

**(a)**

**(b)**  
1000

x x x x x  
1100

**(c)**  
1500

x x  
1600

*Each sign  
a single y  
(b) is the c*

**Fig.**

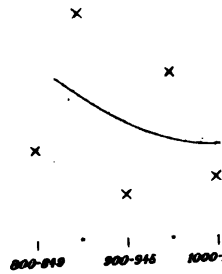
**y**

30 -

20 -

10 -

0 -





Fig

(a)

(b)  $\times \quad \times \quad \times \times \times \quad \times$   
 1000 1100

(c)  $\times \quad \times$   
 1500 1600

Each sign  
 a single y  
 (b) is the c

Fig.

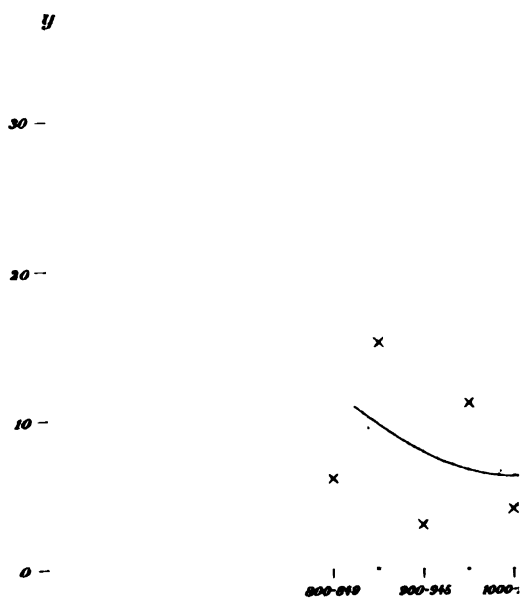




Fig. 12. Monthly Distribution of 1088  
Small Eqkes in Kyoto.

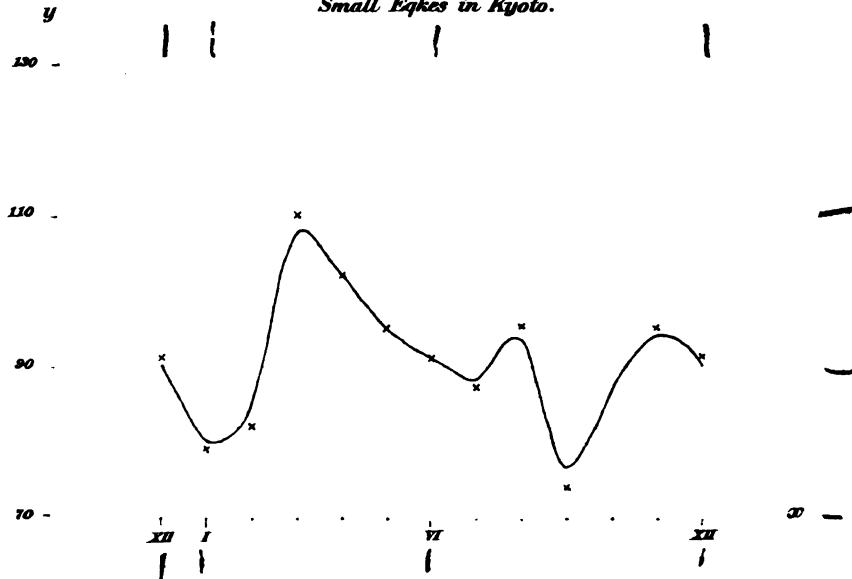
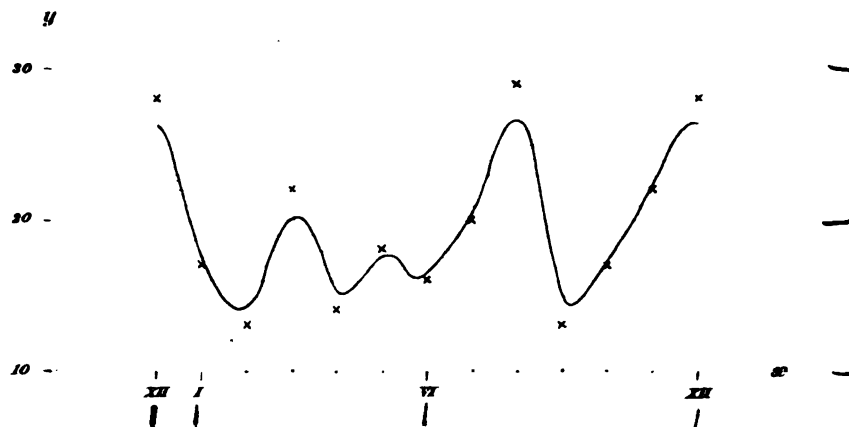


Fig. 13. Monthly Distribution of 228 Strong  
and Destructive Eqkes in Kyoto.



For Figs. 12 and 13 .....  $\begin{cases} x = \text{Month.} \\ y = \text{Monthly number of eqkes.} \end{cases}$



Fig. 14. Seasonal Distribution of 1088 Small  
Eqkes in Kyoto.

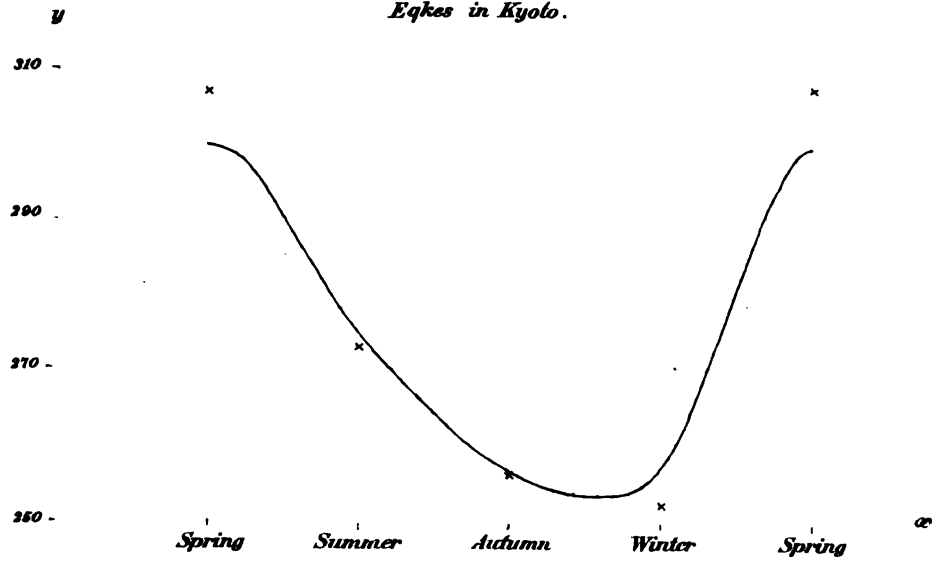
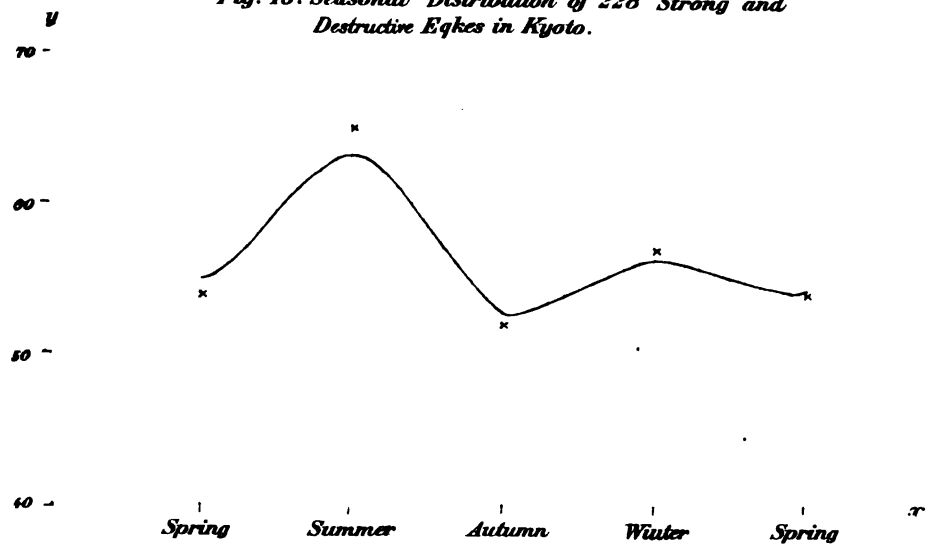


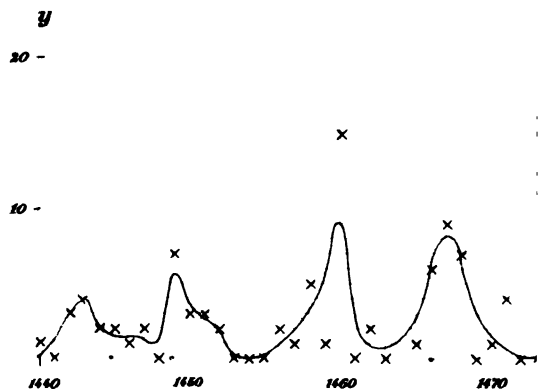
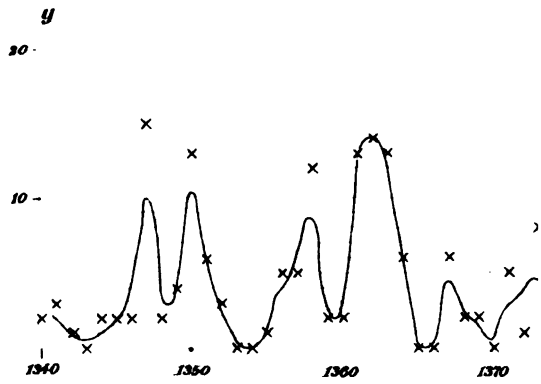
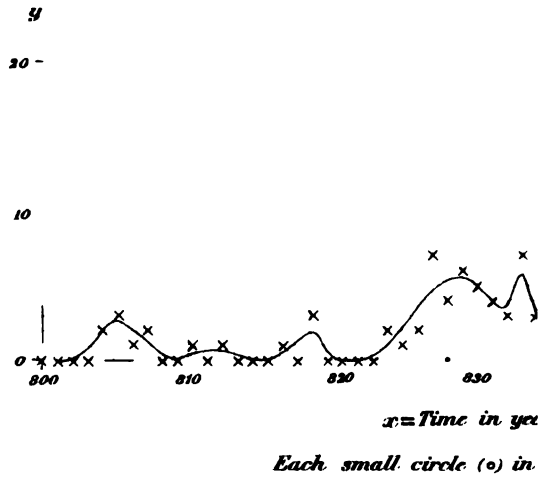
Fig. 15. Seasonal Distribution of 228 Strong and  
Destructive Eqkes in Kyoto.



For Figs. 14 and 15,.....  
 $\begin{cases} x = \text{Season.} \\ y = \text{Seasonal number of eqkes.} \end{cases}$



Fig. 1a

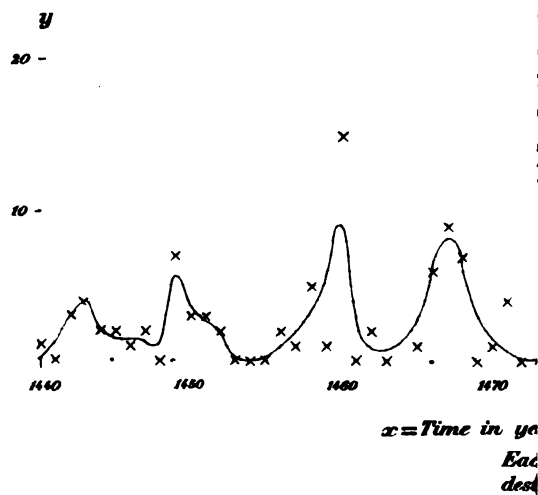
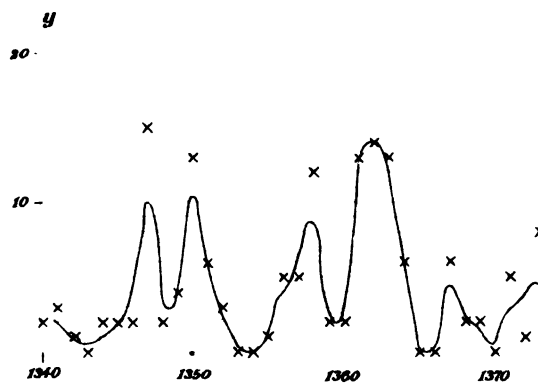
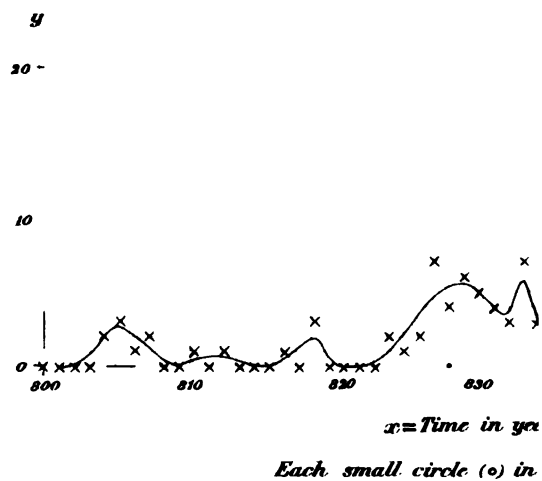


$x = \text{Time in years}$

Each small circle (o) in



Fig. 10





100

100

100

100

100

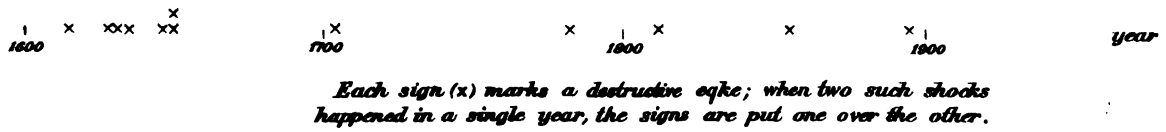
100

100

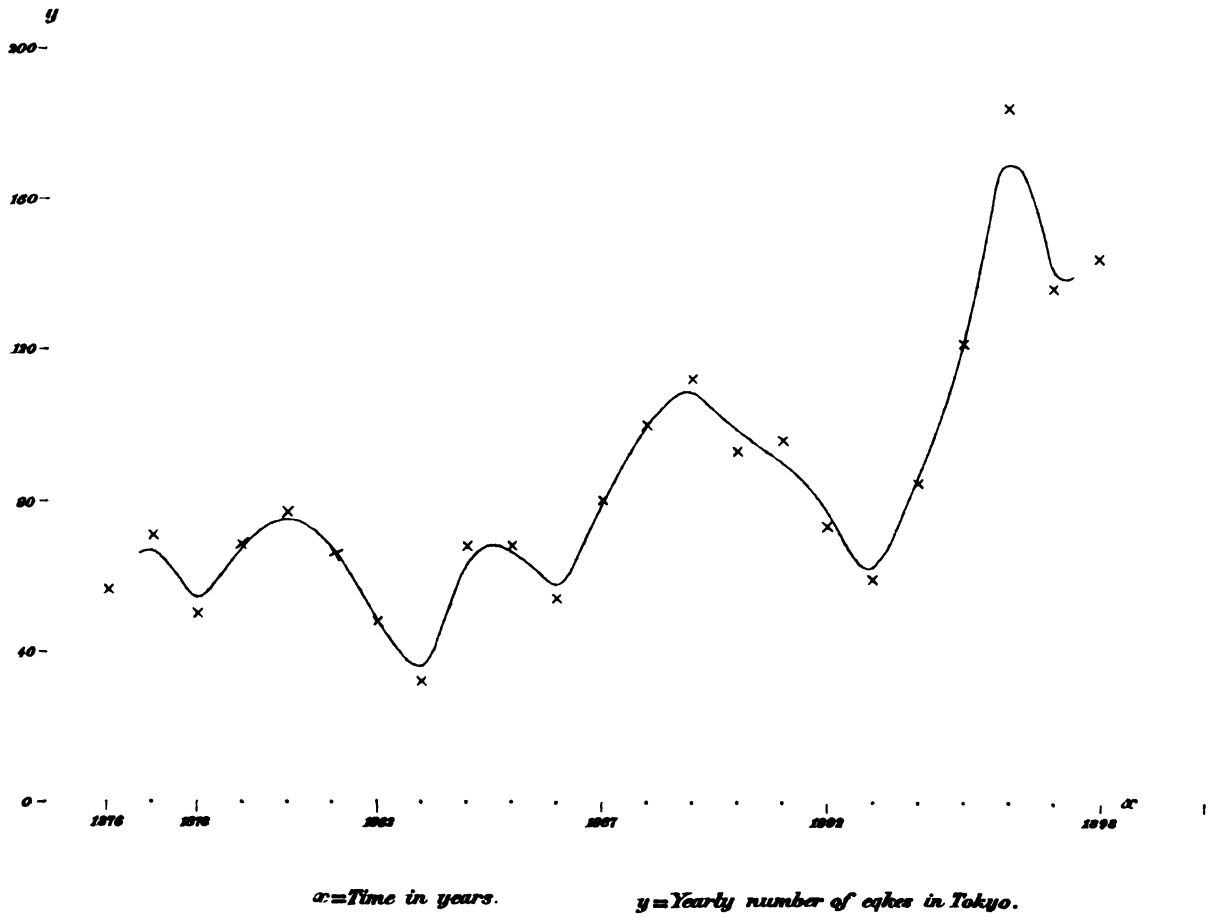
100

100

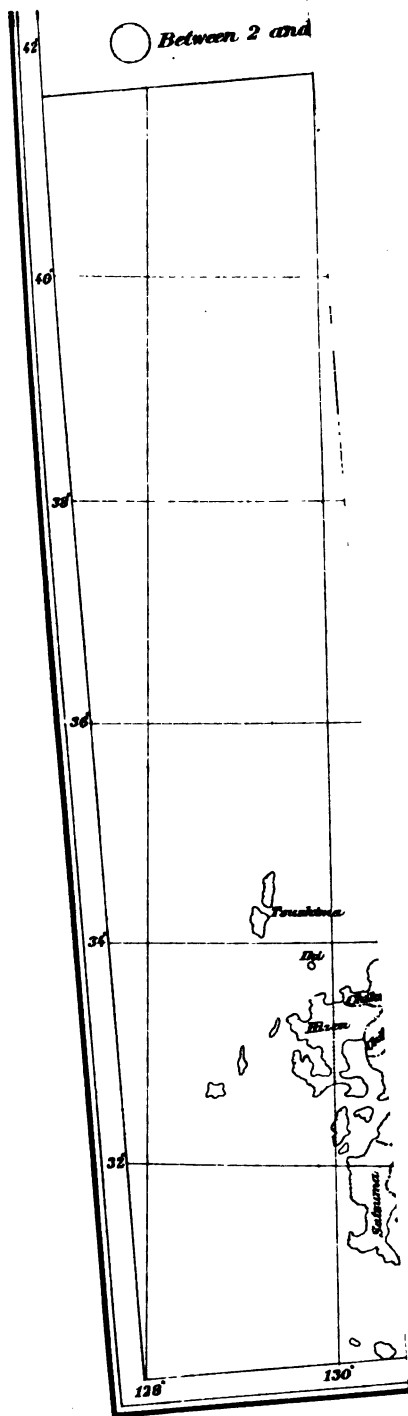
*Fig. 18. Time Distribution of 12 Destructive Eqkes in Yedo (Tokyo)  
(From the 17th century to the preseqt time.)*



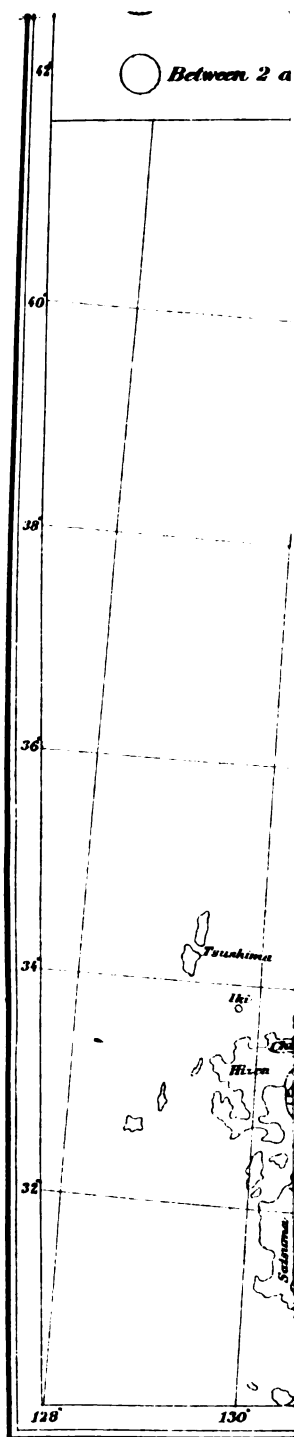
*Fig. 19 Seismic Frequency in Tokyo.  
(From 1876 to 1898.)*

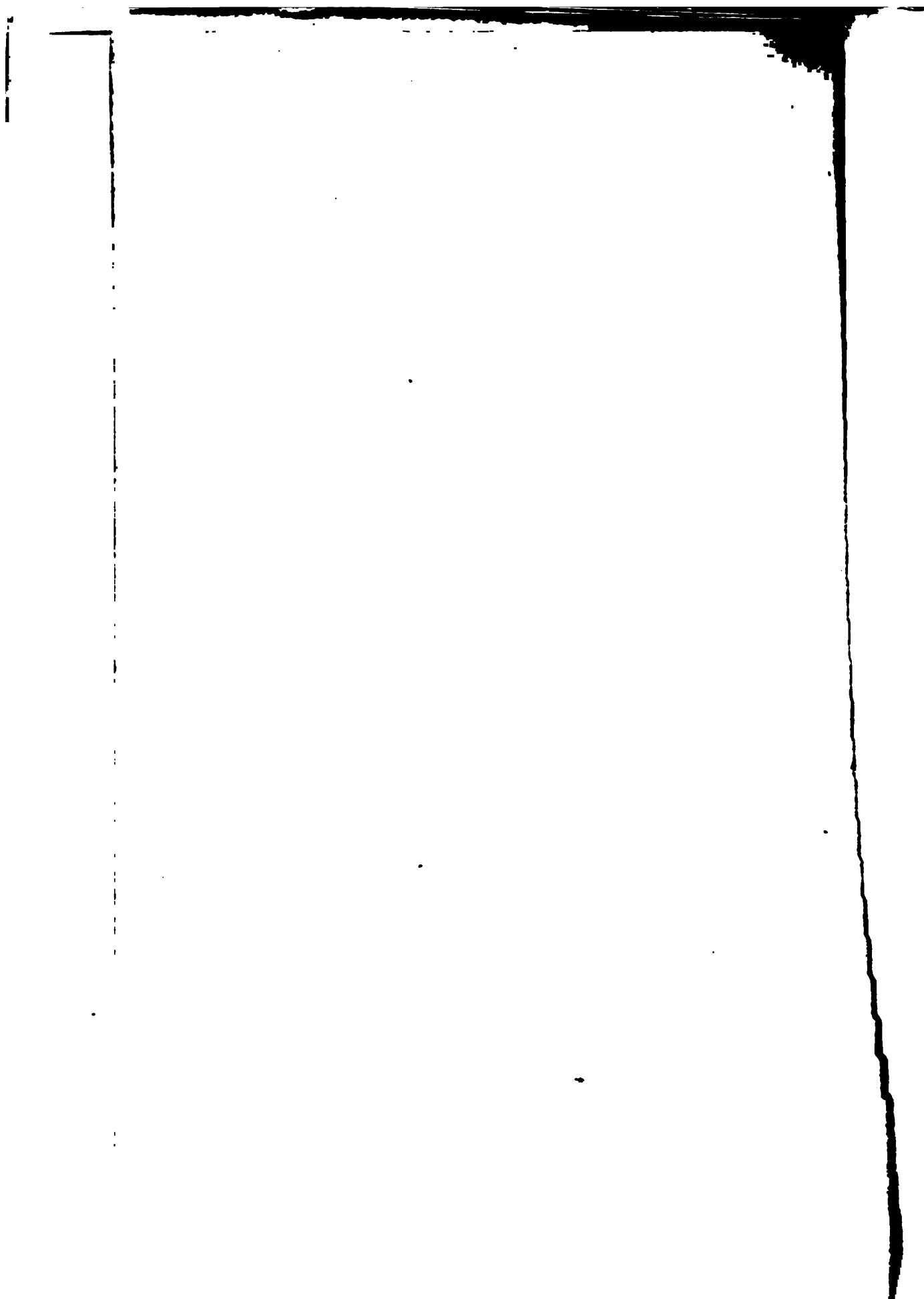










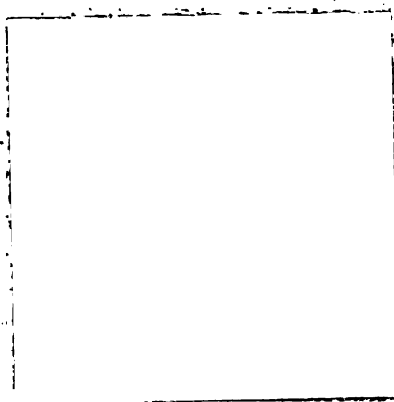


[illegible]

Y LIBRARIES  
94305-6004

STANFORD I'

T



Makers  
Syracuse, N. Y.  
PAT. JAN 21, 1808

551.2252 .J35 C.1  
The earthquake investigation c  
Stanford University Libraries



3 6105 042 984 455

Branner Earth Sciences Library

DATE DUE			
FEB	4	1988	

STANFORD UNIVERSITY LIBRARIES  
STANFORD, CALIFORNIA 94305-6004

